



US Army Corps  
of Engineers  
Baltimore District

---

# CONSTRUCTION SPECIFICATIONS

## TAINTER GATE REPAIR

### WATERBURY DAM, WASHINGTON COUNTY, VERMONT

INVITATION NO. **W912DR-05-B-0004**

CONTRACT NO.

DATE: **MAY 04, 2005**

PROJECT TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

01000	ADMINISTRATIVE REQUIREMENTS
01011	DESCRIPTION/SPECS./WORK STATEMENT
01050	JOB CONDITIONS
01200	WARRANTY REQUIREMENT
01311	PROJECT SCHEDULE BAR CHART
01330	SUBMITTAL PROCEDURES
01451	CONTRACTOR QUALITY CONTROL
01510	TEMPORARY CONSTRUCTION ITEMS
01525	SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS
01561	ENVIRONMENTAL PROTECTION
01720	AS-BUILT DRAWINGS - CADD

DIVISIONS 02 - 16

Not used

## SECTION 01000

## ADMINISTRATIVE REQUIREMENTS

01/01

## PART 1 GENERAL

## 1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-01 Preconstruction Submittals

## Title Evidence

Proof of purchase for equipment and/or materials.

## Invoice Copies

Proof of rental equipment costs.

## Payment Evidence

Proof of full payment.

## Photographs

## SD-03 Product Data

## Cost or Pricing Data

Proof of actual equipment costs.

## Equipment Data

An itemized list of serial/model numbers and equipment installed by the Contractor under this contract..

## SD-05 Design Data

## Progress Schedule; G RE.

A schedule that shows the manner in which the Contractor intends to prosecute the work.

## SD-10 Operations and Maintenance Data

## O and M Data

A list of proposed maintenance and instruction manuals that is mainly used for but not limited to customized equipment.

## 1.2 PROGRESS SCHEDULING AND REPORTING (AUG. 1999)

The Contractor, shall within five days or as otherwise determined by the Contracting Officer, after date of commencement of work, submit for approval a practicable progress schedule showing the manner in which he intends to prosecute the work. Contractor prepared form shall contain the same information as shown on the attached NADB Form 1153 ("Physical Construction Progress Chart" (CENAB-CO-E)

## 1.3 PAYMENTS TO CONTRACTORS: (NOV 1976)

For payment purposes only, an allowance will be made by the Contracting Officer of 100 percent of the invoiced cost of materials or equipment delivered to the site but not incorporated into the construction, pursuant to the Contract Clause entitled "PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS". The Contracting Officer may also, at his discretion, take into consideration the cost of materials or equipment stored at locations other than the jobsite, when making progress payments under the contract. In order to be eligible for payment, the Contractor must provide satisfactory evidence that he has acquired title to such material or equipment, and that it will be utilized on the work covered by this contract. Further, all items must be properly stored and protected. Earnings will be computed using 100% of invoiced value. (CENAB-CO-E)

## 1.4 IDENTIFICATION OF EMPLOYEES: (OCT 1983)

Each employee assigned to this project by the Contractor and subcontractors shall be required to display at all times, while on the project site, an approved form of identification provided by the Contractor, as an authorized employee of the Contractor/subcontractor. In addition, on those projects where identification is prescribed and furnished by the Government, it shall be displayed as required and it shall immediately be returned to the Contracting Officer for cancellation upon release of the assigned employee and or completion of project. (CENAB)

## 1.5 PURCHASE ORDER: (SEP 1975)

One readable copy of all purchase orders for material and equipment, showing firm names and addresses, and all shipping bills, or memoranda of shipment received regarding such material and equipment, shall be furnished the appointed Contracting Officer's Representative as soon as issued. Such orders, shipping bills or memoranda shall be so worded or marked that all material and each item, piece or member of equipment can be definitely identified on the drawings. Where a priority rating is assigned to a contract, this rating, the required delivery date, and the scheduled shipping date shall also be shown on the purchase order. At the option of the Contractor, the copy of the purchase order may or may not indicate the purchase price. (CENAB-CO-E)

## 1.6 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE (EFARS 52.0231.5000 (OCT 1995))

(a) This clause does not apply to terminations. See 52.249-5000, Basis for settlement of proposals and FAR Part 49.

(b) Allowable cost for construction and marine plant and equipment in sound workable conditions owned or controlled and furnished by a contractor or subcontractor at any tier shall be based on actual costs data for each

piece of equipment or groups of similar serial and services for which the government can determine both ownership and operating costs from the contractor's accounting records. When both ownership and operating costs can not be determined for any piece of equipment or groups of similar serial or series equipment from the contractor's accounting records, costs for that equipment shall be based upon the applicable provisions of EP1110-1-8 Construction Equipment Ownership and Operating Expenses Schedule, Region East. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the contracting officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retroactive pricing, the schedule in effect at the time the work was performed shall apply.

(c) Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d) (ii) and Far 31.205-36. Rates for equipment rented from an organization under common control, lease-purchase arrangements, and sale-leaseback arrangements, will be determined using the schedule, except that actual rates will be used for equipment leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated leasees.

(d) When actual equipment costs are proposed and the total amount of the pricing action exceeds the small purchase threshold, the contracting officer shall request the contractor to submit either certified cost or pricing data, or partial/limited data, as appropriate. The data shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet. CENAB-CT/SEP 95 (EFARS 52.231-5000)

#### 1.7 REAL PROPERTY EQUIPMENT DATA: (APR 1975)

At or before the time of completion of the contract, the Contractor shall submit to the Contracting Officer a complete itemized list, including serial and model number where applicable, showing the unit retail value of each Contractor furnished item of mechanical, electrical and plumbing equipment installed by the Contractor under this contract. For each of the items which is specified herein to be guaranteed for a specified period from the date of acceptance thereof, either for beneficial use or final acceptance, whichever is earlier, against defective materials, design, and workmanship, the following information shall be given: the name, address and telephone number of the Subcontractor, Equipment Supplier, or Manufacturer originating the guaranteed item. The list shall be accompanied by a copy of the specific guarantee document for each item which is specified herein to be guaranteed if one had been furnished to the Contractor by the Equipment Supplier or Manufacturer. The Contractor's guarantee to the Government of these items will not be limited by the terms of any manufacturer's guarantee to the Contractor. Baltimore District NADB Form 1019 may be utilized for the itemized listing and will be made available to the Contractor upon request. (CENAB-CO-E)

#### 1.8 O and M DATA: (JUL 1979)

The requirements for furnishing operating and maintenance data and field instruction are specified elsewhere in the specifications. The Contractor shall submit to the Contracting Officer, at a time prior to the 50% project completion time, a list of proposed maintenance and instruction manuals to be furnished the Government and the scheduled dates of all required field

instructions to be provided by Contractor furnished personnel or manufacturer's representatives. All maintenance and instruction manuals must be furnished to the Contracting Officer at least 2 weeks prior to the scheduled dates of any required Contractor furnished field instructions or at least one month prior to project completion if no Contractor furnished field instructions are required. (CENAB)

#### 1.9 NEGOTIATED MODIFICATIONS: (OCT 84)

Whenever profit is negotiated as an element of price for any modification to this contract with either prime or subcontractor, a reasonable profit shall be negotiated or determined by using the OCE Weighted Guidelines method outlined in EFARS 15.902. (Sugg. NAB 84-232)

#### 1.10 PHOTOGRAPHS

PHOTOGRAPHIC COVERAGE: (SEP 85) The Contractor shall furnish ten each 8" x 10" ( commercial grade color photographs of the project (with negatives) to the Contracting Officer. These photographs shall be taken at systematic intervals during the contract where and when directed by the Contracting Officer. (CENAB-CO)

#### 1.11 PARTNERING: (NOV 92)

In order to most effectively accomplish this contract, the Government is willing to form a cohesive partnership with the Contractor and its subcontractors. This partnership would strive to draw on the strengths of each organization in an effort to achieve a quality project done right the first time, within budget and on schedule. This partnership would be bilateral in make-up and participation will be totally voluntary. Any cost associated with effectuating this partnership will be agreed to by both parties and will be shared equally with no change in contract price. (CENAB-EN-DT)

#### 1.12 PERMITS

The permits listed below have been obtained by the Government or are in the approval process and may require additional action by the Contractor to become complete. After final approvals by the respective state agencies are received, the Government will furnish approval letters and permits to the Contracting Officer who will furnish the Contractor all such permits before or during construction. The Contractor shall abide by all permit requirements.

- a. A permit required for construction will be obtained by the Vermont agency for Dam Safety from the Vermont Public Service Board. This process is currently under way and has been coordinated with all levels of the Corps and the State of Vermont.

#### PART 2 PRODUCTS

NOT APPLICABLE

#### PART 3 EXECUTION

NOT APPLICABLE

ATTACHMENTS:

State of Vermont construction permit as described above.

-- End of Section --

TAINTER GATE REPAIRS, WATERBURY DAM, VERMONT

SECTION 01011

DESCRIPTION/SPECS./WORK STATEMENT

1.1. GENERAL: Waterbury Gated Spillway Repair Project, Baltimore District, U.S. Army Corps of Engineers will contract for the replacement of seals rollers and side seal plates on Right Gate 1 and seals and rollers left gate and Right Gate 2, Waterbury Dam outlet works, Waterbury Dam, in accordance with the specifications and contract drawings contained within this entire document.

1.2 DESCRIPTION AND SCOPE OF WORK: The government will award this contract to a responsible and responsive low bidder. However the government reserves the right to delete any line item, or portion thereof, based on the total fiscal resources available to the government at the time of award. Any portions of jobs will be completed at the per unit costs as shown on the Bid Schedule, (Section B).

1.2.1 The Contractor shall furnish all labor, material, supplies and equipment, including equipment operators, necessary to perform the work. The work is to be performed under the direction of the Contracting Officer or the Authorized Representative of the Contracting Officer and includes, but is not limited to, the following technical specifications.

1.2.2 The project entails removal and replacement of seals, rollers, and side seal plates on Right Gate 1 and seals and rollers on the left gate and Right Gate 2 at the Waterbury Dam project. The side seal plate assemblies were originally installed in approximately 2'- 4" wide by 8" deep blockouts on each side of the tainter gate and the box-outs were subsequently filled with concrete. The major elements of the project include:

(a) Demolition of the existing seal assemblies and side seal plate assemblies and breakout concrete within the extents shown on the drawings and specified herein.

(b) Installation of new side seal plate and seal assemblies anchored into the mass concrete as indicated on drawings.

(c) Placement of specialty concrete repair material around the new side seal plate and seal assemblies in the breakout area. The specialty concrete repair material shall be installed using the Form and Pump method. The specialty concrete repair material mix shall be one that is designed for applications requiring a high bond strength, complete shrinkage compensation, high durability and service life in both underwater and above water environments and for the temperature range experienced in the exterior environment at the project site (minus 40 degrees F to above 100 degrees F).

(d) Curing of the specialty concrete repair material and quality control testing.

(e) Replacement of seals and rollers.

1.3 REPAIR REQUIREMENTS:

1.3.1 Demolition and Surface Preparation:

(a) Prior to demolition, a detailed survey shall be performed at each of the 3 gates to document the current three-dimensional positioning of the side seal plates and seal assemblies. Measurements can be referenced to any fixed point not effected by the construction. At a minimum, measurements shall be taken at both edges of each plate, at 2'-0" vertical increments.



TAINTER GATE REPAIRS, WATERBURY DAM, VERMONT

(b) Demolition and subsequent repair at each side of the gate shall be performed to the limits indicated herein and as shown on the drawings. Existing concrete shall be removed throughout the full width and depth of the existing blockout within the vertical extents shown on the drawings. Concrete removal shall extend beyond the limits of the blockout and into the existing mass concrete a sufficient distance to ensure a sound concrete substrate and that good bonding will be achieved between the existing mass concrete and the new specialty concrete repair material. Any removal that extends more than 1" beyond the limits of the blockout shall be performed under the direction of the Contracting Officer. The Contractor shall assume for bidding purposes that an average depth of 1 inch of concrete removal beyond the limits of the blockout will be required.

(c) Where the blockout in the wall meets the weir surface of the spillway, the demolition shall extend vertically past the weir surface a minimum of 4 inches and to the extent necessary to fully remove the side seal plate and to remove any deteriorated concrete. Final direction on the extents of removal below the weir surface of the spillway will be given by the Contracting Officer based on the conditions observed during the work.

(d) If, during the work, it is observed that any unsound or deteriorated concrete exists outside the specified repair limits, such areas shall be brought to the attention of the Contracting Officer for further direction.

(e) The Contractor shall select a demolition method that is suitable for removal of the existing concrete and for providing a roughened, sound surface for bonding of the new specialty concrete repair material. The strength of the existing concrete is indicated by the compressive strength tests performed on core samples and included herein. The method of demolition shall be submitted for approval as indicated in the "Required Submittals" paragraph.

(f) After demolition, the concrete surface shall be sand-blasted or shot-blasted followed by a final cleaning of the surface using vacuum, blow-off, or low pressure waterblast techniques. NOTE: All sandblasting must be accomplished in accordance with appropriate Federal and state regulations including the disposal of recovered sand or shot. The final prepared substrate shall be clean, sound and free from any oils or other materials which would inhibit bonding of the new specialty concrete repair material. The substrate should be visually inspected and sounded (in the presence of the Contracting Officer) to ensure that no loose or delaminated concrete exists. The final prepared substrate must be approved by the Contracting Officer prior to proceeding with the repair.

(g) Unless otherwise indicated by the manufacturer of the repair material, the substrate shall be in a saturated-surface dry (SSD) condition prior to installing the new specialty concrete repair material. Saturation shall be achieved by continual exposure of the substrate to water for a minimum of 24 hours and longer as necessary to ensure that the prepared surface will not absorb excessive moisture from the specialty concrete repair material during the repair procedures.

1.3.2 Installation of New Side Seal Plates, Seal Assemblies, and Guide Blocks:

(a) New side seal plate, seal assemblies, and guide blocks shall be provided within the extents shown on the drawings. Material certifications shall be submitted for approval.

(b) All plates, shapes, threaded rods, nuts and washers shall be as indicated on the contract drawings. Material certifications shall be submitted for approval.

TAINTER GATE REPAIRS, WATERBURY DAM, VERMONT

(c) All shop and field welding shall be performed in accordance with AWS using AWS E410 electrodes.

(d) One shop splice shall be allowed in the new side seal plate and seal assemblies. The splice in the actual side seal plate shall be a complete joint penetration (CJP) weld and shall be ground flush with the base metal.

(e) Threaded rod anchors shall be drilled and epoxy grouted at least 8 inches into sound concrete. Hole diameter and other installation requirements shall be per epoxy grout manufacturer. Epoxy grout shall be a type specifically intended for securing anchor bolts, dowels or rebar in concrete. Submit manufacturer product data and instructions for approval.

(f) New side seal plate exposed surfaces shall be positioned as indicated on the drawings.

(g) Flap seals strips shall be of material as specified in the Contract Drawings. Material certifications shall be submitted for approval.

1.3.3 Concrete Repair:

(a) The "Form and Pump" method shall be used for the repair. This method generally consists of forming across the outer extent of the repair area and pumping specialty concrete repair material into the resultant cavity created by the formwork and the existing concrete substrate. Specialty concrete repair material is pumped into the cavity in a series of ports from the bottom to the top of the repair area.

(b) The exact details of the method shall be designed by the Contractor and shall be submitted for approval as indicated in paragraph "Required Submittals". The method shall be designed to install the specialty concrete repair material to the required limits, ensure that air pockets do not form, and ensure proper consolidation of the specialty concrete repair material and good bonding to the existing concrete. Pressure gauges shall be provided, monitored and documented at appropriate frequencies during the work. The monitoring documents shall be provided to the Contracting Officer at the end of each day. The formwork shall be designed to ensure a flush surface with the existing wall on both sides of the blackout and with the side seal plates. If, after removal of the forms, it is found that this criteria is not met, the Contractor shall provide a flush surface by grinding or other approved methods.

(c) Materials shall be placed at temperatures consistent with those used in the mix design and in accordance with the manufacturer's recommendations. Care must be taken to protect the materials from adverse temperature related affects. Placement in hot or cold weather shall conform to the guidance given in ACI 305R and 306R respectively and the manufacturer's recommendations.

(d) The new specialty concrete repair material shall be moist cured for a minimum of 72 hours. The moist curing period shall be extended if so recommended by the manufacturer to ensure that cracking of the material does not occur and that adequate strength is achieved. The specialty concrete repair material shall be kept continually wet throughout this moist curing period. The Contractor's proposed method and length of curing shall be submitted to the Contracting Officer as indicated in paragraph "Required Submittals".

1.3.4 Completion of Work:

## TAINTER GATE REPAIRS, WATERBURY DAM, VERMONT

(a) The tainter gate work will not be considered complete until all of the following items have been completed/addressed:

(b) The specialty concrete repair material must have a 3-day strength of 2000 psi as determined by compressive testing of samples. The rate of strength gain shall also be consistent with that observed during the mix design study to indicate that the required 28-day strength of 4000 psi will be achieved.

(c) The area must be sounded with a hammer as indicated in the "Required Testing" paragraph.

(d) Measurements are taken in the presence of the Contracting Officer to prove that the new side seal plates are located per the contract documents.

(e) The Contractor must coordinate with the specialty concrete repair material manufacturer and certify that there will not be any "thermal shock" and related adverse affects by exposing the specialty concrete repair material to the lake water. This should also consider that only a portion of the repair area (i.e. behind the gate) would be exposed to the water and therefore must ensure that the temperature gradient across the repair area does not result in material distress. Water temperatures will vary but are typically in the high 30's (degrees F) in early April increasing to the mid to upper 40's by the end of April. The manufacturer's certification shall be based on actual water temperature readings taken at the time of the work.

(f) The Contracting Officer must approve the work.

### 1.4 SPECIALTY CONCRETE REPAIR MATERIAL MATERIALS AND MIX REQUIREMENTS:

#### 1.4.1 Specialty Concrete Repair Material Mix:

(a) The specialty concrete repair material mix shall be a Portland Cement based mix and shall have a minimum 28 day compressive strength of 4000 psi. The mix shall be designed to reach a strength of 2000 psi within 3 days.

(b) The specialty concrete repair material mix shall have air entrainment of 5% to 7%. Any manufacturer's air entrainment recommendations that differ from those specified shall be brought to the attention of the Contracting Officer. The acceptability of any deviations from the specified air entrainment requirement shall be at the discretion of the Contracting Officer.

(c) The specialty concrete repair material mix must have sufficient "flowability" to fill all voids, be pumped the required distances, and provide a finished product meeting the requirements herein using the approved installation methods and equipment.

(d) Aggregates: Aggregates may be used up to a maximum size of 3/8". The Contractor shall further limit the aggregate size as necessary based on the specifics of his system to ensure pumpability, to ensure that all voids will be filled and to achieve a good bond. Aggregates shall meet the quality requirements of ASTM C33 and for an exposure class designation of "5S". The specialty concrete repair material manufacturer shall provide alkali-silica

reactivity test data, performed in accordance with ASTM C 1260-01, indicating that the expansion at 16 days is less than 0.08 %for the proposed aggregates.

(e) The specialty concrete repair material shall be a commercial formulation suitable for the application and for the installation methods to be used and shall have a coefficient of thermal expansion similar to that of standard Class A concrete. The specialty concrete repair material manufacturer shall certify that the mix will be completely shrinkage compensating. The mix shall be designed to ensure a good bond with the existing concrete. Material should also be selected so that the expansion of the material and the time at which expansion occurs in the hydration process will not result in damage to the existing structure. Temperatures for testing as required in paragraph 1.1.1.1.C.c shall be appropriate for the range of temperatures that will be present during placement and curing (including both air and water temperatures). The mix shall be appropriate for use in areas which will be both underwater and above water throughout their service life and for the temperature range experienced in the environment at the project site (minus 40 degrees F to above 100 degrees F).

(f) Mixing water requirements shall be as specified by the specialty concrete repair material manufacturer.

(g) The specialty concrete repair material manufacturer shall review the project details and certify that the materials are appropriate for this application. This includes certification that the materials are designed for applications requiring a high bond strength, complete shrinkage compensation, high durability, applicability for areas which will be both underwater and above water throughout their service life and for the temperature range experienced in the environment at the project site (minus 40 degrees F to above 100 degrees F).

Such certification shall also verify that the material selection is applicable for the installation technique required and for the geometry of the repair area.

The manufacturer should also certify that heat of hydration will not adversely affect the material. The manufacturer shall provide proof of successful results on similar projects.

1.4.2 Required Testing: Note: All testing that requires laboratory types of analysis shall be performed at Corps of Engineers approved laboratories or testing facilities.

(a) Air Content: Air content tests shall be performed for each batch of specialty concrete repair material mixed. Any materials not having the manufacturer's specified air content shall be rejected. Tests shall be performed in accordance with ASTM C 231.

(b) Slump or Flow Cone Testing: Slump or Flow cone tests shall be performed on each batch of concrete to ensure that the mix will flow as required during placement. Specific slump or flow cone parameters/criteria are not presented herein. The range of acceptable slump values or flow cone times shall be selected by the Contractor, working with the specialty concrete repair material manufacturer and shall be approved by the Contracting Officer. The values shall be selected so as to ensure that the specialty concrete repair material consistency will provide a finished product meeting the requirements herein using the approved installation methods and equipment.

(c) Strength tests: A Corps approved testing lab shall be used. Required strengths are discussed in subsequent paragraphs. ASTM C39 shall be used for testing unless it is determined that ASTM C109 is appropriate for the

## TANTER GATE REPAIRS, WATERBURY DAM, VERMONT

approved mix. For each side of the gate, a minimum of 9 samples shall be obtained. Specific times for testing will depend upon the materials used. One "short term test" (3 samples) per side shall be performed to show that the minimum 2000 psi strength requirement has been met. One "long term" test (3 samples) per side shall be performed to show that the minimum ultimate strength of 4000 psi has been achieved. The additional 3 samples for each side are for "backup testing" if the other tests yield unsatisfactory results or if there are errors during the testing procedure.

(d) Sounding: After the repair has been completed and the concrete has obtained a strength of 2000 psi (as determined by testing), the concrete shall be sounded with a hammer in the presence of the Contracting Officer. Such sounding is required to ensure that the new specialty concrete repair material is free of voids and is adequately bonded to the mass concrete. Any results indicative of unsound or unbonded concrete shall be investigated as directed by the Contracting Officer by coring or other specified methods. Areas found to be deficient shall be repaired as directed by the Contracting Officer at the Contractor's expense and responsibility. The Contractor shall assume for bidding purposes that four eight-inch long cores will be required. Additionally, the cost for any cores beyond this number that show the concrete to be deficient shall be borne by the Contractor. Patching materials for the cores shall be appropriate for the application and shall be submitted to the Contracting Officer for approval.

### 1.5 REQUIRED SUBMITTALS:

(a) Demolition & Surface Preparation: Contractor's methods/equipment for concrete demolition and side seal plate removal. Procedures for sandblasting/shotblasting and for final cleaning of the concrete substrate. Procedure for saturating and preparing substrate for the repair. Three copies shall be submitted at least 2 weeks prior to the beginning of this activity phase.

(b) Stainless Steel Material Certifications: Three copies of material certifications shall be submitted at least one week prior to installation for all stainless steel items.

(c) Epoxy grout for threaded rods: Three copies of product data and instructions shall be submitted at least one week prior to installation of threaded rods.

(d) Mix Design & Material Testing: Specialty concrete repair material mix design including material information/properties for all cementitious components, aggregates and admixtures. Manufacturer's certification that the material is appropriate for the application and meets the requirements discussed in paragraph "Specialty concrete repair material Materials and Mix Requirements". Manufacturer's requirements for mixing, placement and curing including temperature requirements. Source and properties of mixing water. Three copies of product data, instructions and certification shall be submitted at least three weeks prior to the placement of specialty concrete repair material.

(e) Form & Pump System Details: Detailed information on the Contractor's proposed system including equipment to be used, pumping pressures to be used, type of formwork and anchoring method, arrangement of ports/valves,

TAINTER GATE REPAIRS, WATERBURY DAM, VERMONT

general construction procedure. Three copies of process and procedure shall be submitted at least two weeks prior to the beginning of the activity.

(f) Methods of Curing: The Contractor's methods of moist curing and length of the curing period. Three copies shall be submitted at least 2 weeks prior to the beginning of this activity phase.

(g) Test Results: Results of all tests discussed in paragraph "Required Testing".

(h) Patching Materials: Manufacturer's product information for materials to be used to patch any core holes or other holes such as anchor holes for forms. Manufacturer's certification that the materials are appropriate for the application. The manufacturer shall provide proof of successful results on similar projects in extreme cold weather climates. Three copies shall be submitted at least three week prior to the beginning of this activity phase.

(i) Exposure to Lake Water: Certification that the exposure of the concrete to the lake water will not result in concrete distress. Three copies shall be submitted at least one week prior to the beginning of this activity phase.

(j) Flap Seal Strips: Three copies of material certifications shall be submitted at least one week prior to installation for flap seal strips.

(k) Ultra High Molecular Weight Polyethylene: Three copies of material certifications shall be submitted at least one week prior to installation for all ultra high molecular weight polyethylene items.

(l) Miscellaneous Metal and Fasteners: Three copies of material certifications shall be submitted at least one week prior to installation for all miscellaneous metal and fasteners.

(m) Method of securing Right Bay Gate 1. Three copies of material certifications shall be submitted at least three weeks prior to securing Right Bay Gate 1.

End of Section

## SECTION 01050

JOB CONDITIONS  
01/01

## PART 1 GENERAL

## 1.1 LAYOUT OF WORK

LAYOUT OF WORK: (APR 1972) The Contractor shall lay out his work and shall be responsible for all measurements in connection therewith. The Contractor shall furnish, at his own expense, all templates, platforms, equipment, tools and materials and labor as may be required in laying out any part of the work. The Contractor will be held responsible for the execution of the work to such lines and elevations shown on the drawings or indicated by the Contracting Officer. (CENAB)

## 1.2 PHYSICAL DATA: (APR 1984)

Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation or conclusion drawn from the data or information by the Contractor. (CENAB)

## 1.2.1 Transportation Facilities

Waterbury is located in the northwest corner of Washington County, Vermont. Interstate 89 passes through Waterbury, enabling easy access from Burlington and Montpelier. Waterbury Dam project is located in Waterbury Vermont, approximately 30 miles east of Burlington. The dam site is on the Little River with the main access to the project from the southwest via Little River Road.

## 1.2.2 Explorations

The physical conditions indicated on the drawings and in the specifications are the result of site investigations by surveys, concrete core borings and visual inspection. and core borings. Concrete exploration logs, test results and photographs of the site are inserted at the end of this Section.

## 1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-01 Preconstruction Submittals

Shut Down Utility Services; G RE.

Prior approval for service/utility interruptions.

Advance Notice

When changes and/or relocations are required.

Survey Data; G RE

The establishing of bench marks and horizontal control points.

Quantity Surveys

The furnishing of all original field notes and all other records relating to the survey or to the layout of the work.

1.4 UTILITIES

1.4.1 Availability of Utilities Including Lavatory Facilities: (JUN 1980)

It shall be the responsibility of the Contractor to provide all utilities he may require during the entire life of the contract. He shall make his own investigation and determinations as to the availability and adequacy of utilities for his use for construction purposes and domestic consumption. He shall install and maintain all necessary supply lines, connections, piping, and meters if required, but only at such locations and in such manner as approved by the Contracting Officer. Before final acceptance of work under this contract, all temporary supply lines, connections and piping installed by the Contractor shall be removed by him in a manner satisfactory to the Contracting Officer. (CENAB)

1.4.2 Interruption of Utilities: (1972)

a. No utility services shall be interrupted by the Contractor to make connections, to relocate, or for any purpose without approval of the Contracting Officer.

b. Request for permission to shut down utility services shall be submitted in writing to the Contracting Officer not less than 10 days prior to proposed date of interruption. The request shall give the following information:

c. Nature of Utility (Gas, L.P. or H.P., Water, Etc.)

d. Size of line and location of shutoff.

e. Buildings and services affected.

f. Hours and date of shutoff.

g. Estimated length of time service will be interrupted.

h. Services will not be shut off until receipt of approval of the proposed hours and date from the Contracting Officer.

i. Shutoffs which will cause interruption of Government work operations as determined by the Contracting Officer shall be accomplished during regular non-work hours or on non-work days of the Using Agency without any additional cost to the Government.

j. Operation of valves on water mains will be by Government personnel. Where shutoff of water lines interrupts service to fire



hydrants or fire sprinkler systems, the Contractor shall arrange his operations and have sufficient material and personnel available to complete the work without undue delay or to restore service without delay in event of emergency.

k. Flow in gas mains which have been shut off shall not be restored until the Government inspector has determined that all items serviced by the gas line have been shut off. (CENAB)

1.5 DISPOSAL OF EXISTING MATERIAL AND EQUIPMENT: (DEC 1975)

All removed, dismantled or demolished material and/or equipment including rubble, scrap and debris not specified or indicated to be Government salvaged, reinstalled under this contract or otherwise retained for disposal on Government land will become the property of the Contractor and shall be promptly removed from the site and disposed of by the Contractor at his own expense and responsibility in accordance with Federal, State and Local laws.. (CENAB)

1.6 COMPLIANCE WITH RESERVOIR REGULATIONS: (JUL 1980)

The site of the work is on a state-owned reservoir and all rules and regulations issued by the superintendant covering general safety, security, sanitary requirements, pollution control, traffic regulations and parking, shall be observed by the Contractor. Information regarding these requirements may be obtained by contacting the Contracting Officer, who will provide such information or assist in obtaining same from appropriate authorities. (MEMO)

1.7 MAINTENANCE OF ACCESS: (DEC 1975)

The Contractor shall not block passage through roads, to the construction site during performance of work under this contract. In addition, the Contractor shall at all times maintain safe and clear passage to allow minimal disruption of normal activities. No equipment or new materials are to be stored except those items that are necessary for progress of the immediate work. All existing equipment, materials and debris removed shall be removed daily by the Contractor from the site. (CENAB)

1.8 PROTECTION OF GOVERNMENT PROPERTY AND PERSONNEL: (DEC 1975)

1.8.1 Protection of Equipment

All existing local Government owned equipment within the work area shall be protected by the Contractor from damage caused by construction operations. As a minimum, the Contractor shall protect such items from any damage due to dust, vibration, water, heat or other conditions resulting from construction activities. Existing work damaged by construction operations shall be promptly repaired by the Contractor at his own expense.

1.8.2 Protection of Personnel

The Contractor shall protect personnel and onlookers by installing safety rails and/or barricades as applicable to prevent injury from unauthorized entry of personnel into work areas. Warning signs shall be erected as necessary to indicate Construction areas or hazardous zones. Work shall proceed in such manner as to prevent the undue spread of dust and flying particles.

### 1.8.3 Measures to Prevent Damage/Injury

The Contractor shall take such additional measures as may be directed by the Contracting Officer to prevent damage or injury to Government property or personnel. (CENAB)

### 1.9 ORDER OF WORK AND COORDINATION WITH OTHER CONTRACTORS: (FEB 1979)

Other Contractors are presently working in the same area. After award of this contract a meeting will be held with all contractor representatives and the Contracting Officer to develop a plan of work coordination. In case of disagreement regarding use of an area the decision of the Contracting Officer will control. (CENAB)

### 1.10 ASBESTOS HANDLING AND REMOVAL (FEB 85)

Through site investigations, friable asbestos has not been found, however if asbestos is encountered, its testing, removal and disposal is covered in "CHANGES" clause of the Contract Clauses. (CENAB)

### 1.11 LEAD PAINT

Although the removal of lead paint is not part of the work required for this contract, the Contractor should be aware that lead paint may be present on components adjacent to the work, and shall take appropriate precautions in the execution of the required work. 1.12 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

#### 1.12.1 Procedure for Determination

This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance the contract clause entitled "Default: (Fixed Price Construction)". In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

a. The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

b. The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

#### 1.12.2 Anticipated Adverse Weather Delays

The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY  
WORK DAYS BASED ON (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
(31)*	(28)*	(31)*	(7)	(9)	(10)	(6)	(5)	(5)	(6)	(10)	(30)*

\*NOTE - Project duration is based on a winter shutdown from 2 December to 1 April. Therefore, should the contractor choose to work during this period no time extensions will be given for adverse weather days encountered between 2 December and 1 April."

### 1.12.3 Impact

Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the contractor's scheduled work day. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph "Anticipated Adverse Weather Delays", above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the contract clause entitled "Default (Fixed Price Construction)".

### 1.13 WORKING HOURS

WORKING HOURS: (DEC 93) It shall be the Contractors responsibility to obtain the working hours other than the normal five (5) day work week 08:00 am to 4:30 pm.

### 1.14 LIMITS OF WORK AREAS

The limits of work areas as shown on the drawings are necessarily approximate. In case of doubt as to the actual limits of any work area, determination as to the actual limits will be made by the Contracting Officer.

### 1.15 EQUIPMENT & MATERIAL MANAGEMENT

#### 1.15.1 Daily Equipment

Except for scaffolding, all construction equipment, supplies, and any debris generated by construction activities shall be removed from the gated spillway area at the end of each work day. Equipment and supplies may be left within the elevated staging area during normal reservoir conditions (i.e. approximately elevation 550). If a high water event, as determined by the Contracting Officer, is anticipated, it will be necessary to remove all equipment, supplies, construction debris, and scaffolding from the spillway area including the designated staging area.

#### 1.15.2 Equipment Evacuation During Emergencies

It is the responsibility of the Contractor to evacuate all equipment and materials from the spillway channel and designated staging area due to an

impending emergency (High Water). It is the responsibility of the Contractor to fully plan, coordinate, and implement the evacuation of personnel, equipment, materials, and supplies from these areas. The Contractor shall ensure that sufficient labor, materials, supplies, and equipment are on site to evacuate equipment, materials, and supplies and to provide emergency remedial treatment to the structures under repair to adequately repair any and all work areas where concrete has been removed or replaced by the Contractor during execution of this work.

#### 1.16 DAMAGE TO WORK (1966 MAR OCE)

##### ALTERNATE 1:

The responsibility for damage to any part of the permanent work shall be as set forth in the "Permits and Responsibilities" clause of the Contract Clauses. However, if, in the judgment of the Contracting Officer, any part of the permanent work performed by the Contractor is damaged by flood or earthquake which damage is not due to the failure of the Contractor to take reasonable precautions or to exercise sound engineering and construction practices in the conduct of the work, the Contractor will make the repairs as ordered by the Contracting Officer and full compensation for such repairs will be made at the applicable contract unit or lump sum prices as fixed and established in the contract. If, in the opinion of the Contracting Officer, there are no contract unit or lump sum prices applicable to any part of such work an equitable adjustment pursuant to the "Changes" clauses of the Contract Clauses, will be made as full compensation for the repairs of that part of the permanent work for which there are no applicable contract unit or lump sum prices. Except as herein provided, damage to all work (including temporary construction), utilities, materials, equipment and plant shall be repaired to the satisfaction of the Contracting Officer at the Contractor's expense, regardless of the cause of such damage. (CENAB)

#### 1.17 ENVIRONMENTAL LITIGATION (1974 NOV OCE)

If the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Contracting Officer, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or a Subcontractor at any tier not required by the terms of this contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor or a Subcontractor at any tier other than as required by the terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the Contracting Officer in the administration of this contract under the terms of the "Suspension of Work" clause of the Contract Clauses. The period of such suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

The term "environmental litigation", as used herein, means a lawsuit alleging that the work will have an adverse effect on the environment or that the Government has not duly considered, either substantively or procedurally, the effect of the work on the environment. (CENAB)

1.18 MEASUREMENT AND PAYMENT

No separate measurement and payment will be made for the work performed in this Section 01050, JOB CONDITIONS, specified herein; and all costs in connection therewith shall be considered a subsidiary obligation of the Contractor, and shall be included in the overall cost of the work.(CENAB)

PART 2 PRODUCTS

NOT APPLICABLE

PART 3 EXECUTION

NOT APPLICABLE

ATTACHMENT

RISK ASSESSMENT CHECKLIST  
CORE TEST RESULTS  
RIGHT WALL CORE LOCATIONS  
LEFT WALL CORE LOCATIONS  
SPILLWAY PHOTOGRAPHS

-- End of Section --

## EXCAVATION AND OTHER WORK IN THE VICINITY OF UTILITIES

PROJECT NAME: \_\_\_\_\_  
CONTRACT NUMBER: \_\_\_\_\_  
PROJECT INSTALLATION AND LOCATION: \_\_\_\_\_  
REASON FOR EXCAVATION: \_\_\_\_\_  
PROPOSED EXCAVATION START DATE: \_\_\_\_\_

1. ☐ **ESTABLISH** EXCAVATION DETAILS AND DRAWINGS (Check when completed)  
2. ☐ PROPOSED EXCAVATION AREA MARKED ("white lining") (Check when completed)  
3. ☐ CONTACT APPROPRIATE ONE-CALL SERVICE **FOR PUBLIC UTILITIES:**

MD: Miss Utility 1-800-257-7777      NY: New York City/Long Island One Call Center 1-800-272-4480  
DC: Miss Utility 1-800-257-7777      PA: Pennsylvania One-Call System Inc. 1-800-242-1776  
N. VA: Miss Utility 1-800-552-7777      ONE CALL NATIONAL REFERRAL CENTER 1-888-258-0808  
VA: Miss Utility of VA 1-800-552-7001

☐ **CONTACT INSTALLATION/OWNERS OF ALL PRIVATELY OWNED UTILITIES (NON ONE-CALL MEMBERS) (Check when completed)**

4. ☐ DATE UTILITIES MARKED AND METHOD OF MARKING

**ONE-CALL LOCATORS** \_\_\_\_\_

**OTHER LOCATORS** \_\_\_\_\_

5. ☐ CONTACT APPROPRIATE DPW REPRESENTATIVES AND COMPLY WITH INSTALLATION PERMIT REQUIREMENTS: \_\_\_\_\_

6. ☐ UTILITIES IDENTIFIED ON-SITE:

☐ NONE   ☐ ELECTRIC   ☐ GAS   ☐ WATER   ☐ TELEPHONE   ☐ CATV   ☐ SEWER  
☐ OTHER \_\_\_\_\_

7. ☐ LEVEL OF RISK: (Based upon personnel safety and consequences of utility outages.)

☐ SEVERE: Excavation required within the immediate vicinity (<2-ft) of MARKED utility.  
☐ MODERATE: Excavation required outside the immediate vicinity (>2-ft) of MARKED utility.  
☐ MINIMAL: Excavation required in an area with NO utilities.

8. ☐ EXISTING FACILITIES/UTILITIES IN VICINITY:

☐ NON-CRITICAL   ☐ MISSION CRITICAL   ☐ HIGH PROFILE   ☐ CEREMONIAL  
☐ OTHER \_\_\_\_\_

☐ **CONSEQUENCES IF EXISTING UTILITIES ARE DAMAGED/DISRUPTED** \_\_\_\_\_

9. ☐ ENGINEERING CONTROLS REQUIRED: ☐ NONE   ☐ HAND EXCAVATE TO LOCATE UTILITY  
☐ EXCAVATE WITH DUE CARE   ☐ OTHER \_\_\_\_\_

10. ☐ ADMINISTRATIVE CONTROLS REQUIRED:

☐ Notification of Contracting Officer's Representative, NOTIFIED on: \_\_\_\_\_

☐ Notification of Installation/DPW Representative, NOTIFIED on: \_\_\_\_\_

11. ☐ EMERGENCY NOTIFICATION AT INSTALLATION: POC & PHONE NUMBER: \_\_\_\_\_

**THE INFORMATION NOTED ABOVE IS ACCURATE AND THE WORK IS READY TO PROCEED:**

**SIGNED and DATE** \_\_\_\_\_ **CQC MANAGER**

12. ☐ ON-SITE GOVERNMENT REP. RECOMMENDATION FOR APPROVAL TO EXCAVATE:

☐ YES   ☐ NO SIGNATURE AND DATE: \_\_\_\_\_

Comments: \_\_\_\_\_

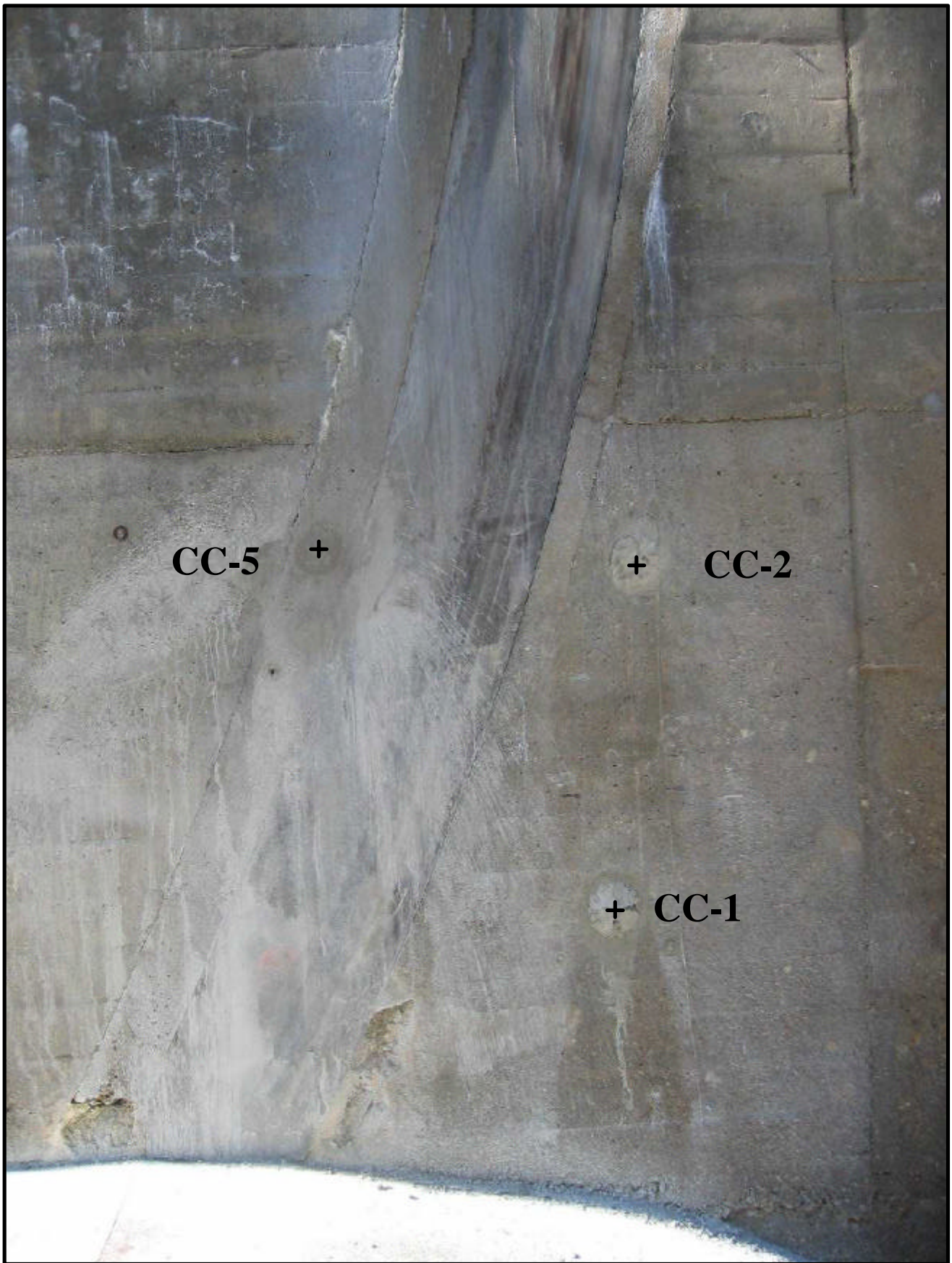
13. ☐ AREA ENGINEER APPROVAL TO EXCAVATE: ☐ APPROVED   ☐ DENIED

SIGNATURE AND DATE: \_\_\_\_\_

Comments: \_\_\_\_\_

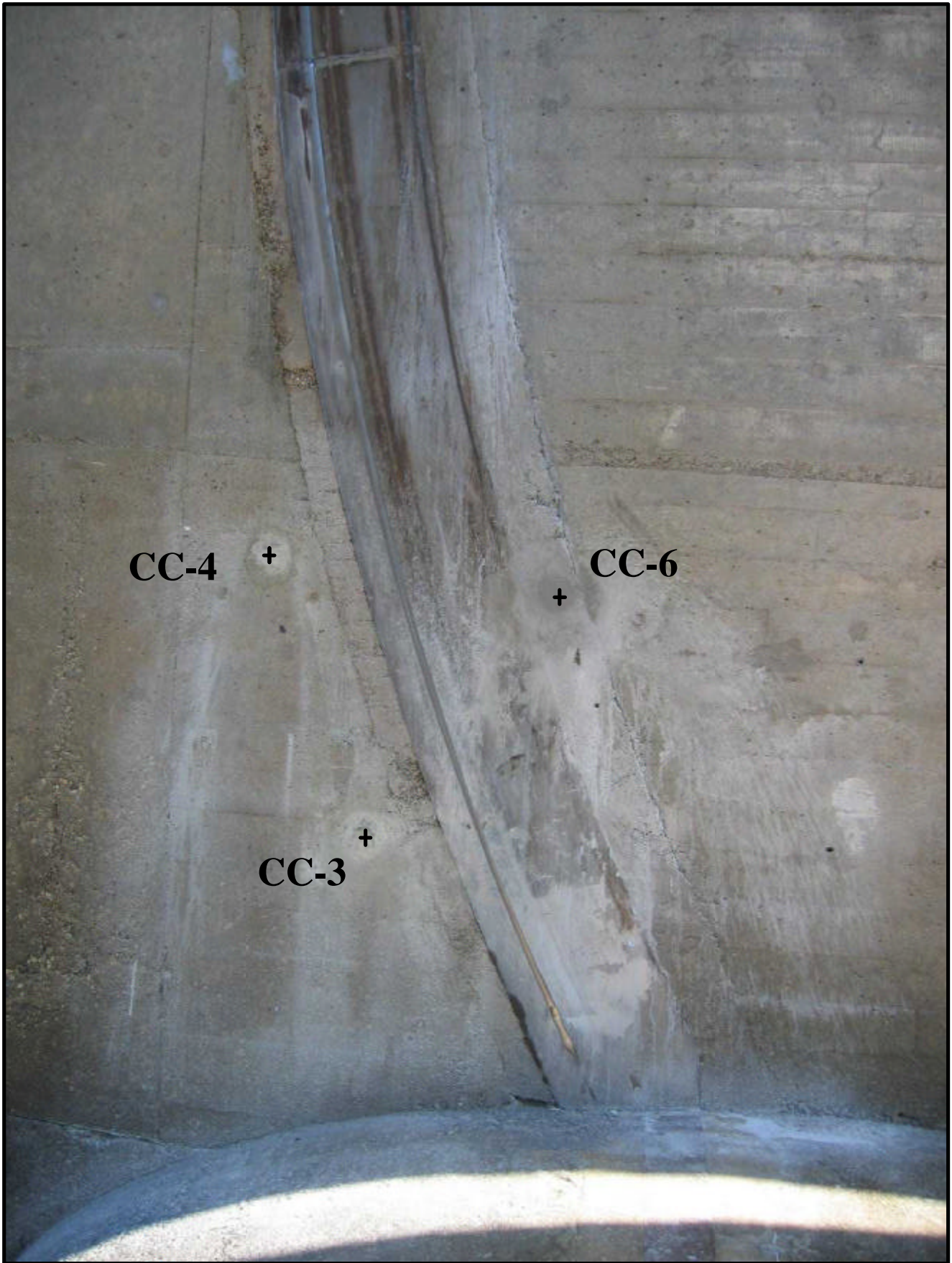
## BALTIMORE DISTRICT MATERIALS &amp; INSTRUMENTATION UNIT TEST RESULTS

DRILLED CONCRETE CORE TEST SPECIMEN REPORT									
PROJECT: Waterbury Dam, VT									
AREA: Spillway Tainter Gate Repair Project									
Right Gate									
TEST:		ASTM C 39 Compressive Strength of Cylindrical Concrete Specimens (also Drilled Cores)							
		ASTM C 42 Obtaining & Testing Drilled Cores & Sawed Beams of Concrete							
		ASTM C 617 Capping Cylindrical Concrete Specimens							
Date Obtained	Date Tested	Specimen No.	Diameter (in)	Length (in)	Location	Load (lbs)	Compressive Strength (psi)	Unit Weight (pcf)	Class of Concrete
8/30/2004	09/14/04	CC - 1A	3.95	7.91	Right Wall-outside face 2' from floor	78,300	6,400	153.6	5-9000
		CC - 1B	3.94	7.94	Right Wall-bott of core 2' from floor	71,735	5,880	153.3	
		CC - 2A	3.94	7.97	Right Wall-outside face 5' from floor	61,145	5,020	149.7	
		CC - 2B	3.95	7.94	Right Wall-bott of core 5' from floor	81,965	6,710	154.2	
		CC - 3A	3.95	7.95	Left Wall-outside face 2' from floor	108,055	8,820	155.5	
		CC - 3B	3.95	7.92	Left Wall-bott of core 2' from floor	89,980	7,360	153.1	
		CC - 4A	3.95	7.90	Left Wall-outside face 5' from floor	75,035	6,130	153.0	
		CC - 4B	3.95	7.94	Left Wall-bott of core 5' from floor	76,700	6,260	154.4	
09/30/04	11/01/04	CC - 5	3.68	7.28	Right Wall - 5' from sill - outside face- blackout	123,125	11,550	148.3	
		CC - 6	3.68	7.45	Left Wall -5' from sill - outside face- blackout	121,760	11,420	148.3	
REMARKS: The moisture condition of the cored specimens was as-received.									
All core were drilled horizontally to a depth of 18 inches. "Outside face" is a depth of 0-8"; "bott of core" is depth of 16-24".									
The load was applied perpendicular to the horizontal plane of the specimen.									
Core strengths are generally 85% of the corresponding standard-cured cylinder strengths. (ASTM C 42 para. 3.5)									



Concrete Core Locations  
Right Gate 1 – Right Wall





Concrete Core Locations  
Right Gate 1 – Left Wall



Looking west at downstream face of spillway viewed from left abutment. Gated section of spillway in foreground and non-gated section in background. The two smaller gates were constructed with the dam in the 1930's, and the larger gate (closest in view) was added in the 1950's.



Steel wall plate in gated spillway viewed looking west toward embankment. One of original gates shown in fully open position.





Upstream face of gated spillway structure looking west toward embankment. Three gated bays in foreground and uncontrolled section between gated section and embankment. Proposed staging area immediately upstream of ungated spillway section.



View of roller and seal in contact with steel wall plate from downstream side of gate surface. Note limits of "blockout" concrete delineated by separation from primary spillway concrete.



Close-up of gate seal and roller mechanism in eastern gate constructed in 1950's.

## SECTION 01200

WARRANTY REQUIREMENT  
01/01

## PART 1 GENERAL

## 1.1 WARRANTY OF CONSTRUCTION

The Contractor shall warranty all materials and workmanship in accordance with Contract Clause (FAR 52.246-21), "WARRANTY OF CONSTRUCTION"

## 1.2 MANUFACTURER'S WARRANTY:

The Contractor shall provide manufacturer's warranties, when available, on all equipment for one year starting from the day of facility acceptance by the Government. Any warranty offered by the manufacturer for periods greater than one year or required by other sections of the specifications shall also be provided.

## 1.3 WARRANTY PAYMENT

Warranty work is a subsidiary portion of the contract work, and has a value to the Government of \$25,000. The Contractor will assign a value of that amount in the breakdown for progress payments mentioned in the Contract Clause (FAR 52.232-5) "Payments Under Fixed-Price Construction". If the Contractor fails to respond to warranty items as provided in paragraph CONTRACTOR'S RESPONSE TO WARRANTY SERVICE REQUIREMENTS below, the Government may elect to acquire warranty repairs through other sources and, if so, shall backcharge the Contractor for the cost of such repairs. Such backcharges shall be accomplished under the Contract Clause (FAR 52.243-4) "CHANGES" of the contract through a credit modification(s).

## 1.4 PERFORMANCE BOND:

The Contractor's Performance Bond will remain effective throughout the construction warranty period and warranty extensions.

## 1.4.1 Failure to Commence

In the event the Contractor or his designated representative(s) fail to commence and diligently pursue any work required under this clause, and in a manner pursuant to the requirements thereof, the Contracting Officer shall have the right to demand that said work be performed under the Performance Bond by making written notice on the surety. If the surety fails or refuses to perform the obligation it assumed under the Performance Bond, the Contracting Officer shall have the work performed by others, and after completion of the work, may demand reimbursement of any or all expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

## 1.5 PRE-WARRANTY CONFERENCE:

Prior to contract completion and at a time designated by the Contracting Officer, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this specification. Communication procedures for Contractor notification of

warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty shall be reviewed at this meeting. The Contractor shall provide names, addresses, and telephone numbers of all subcontractors, equipment suppliers, or manufacturers with specific designation of their area of responsibilities if they are to be contacted directly on warranty corrections. This point of contact will be located within the local service area of the warranted construction, will be continuously available, and will be responsive to Government inquiry on warranty work action and status. Minutes of the meeting will be prepared by the Government and signed by both, the Contractor and the Contracting Officer. The minutes shall become part of the contract file.

#### 1.6 CONTRACTOR'S RESPONSE TO WARRANTY SERVICE REQUIREMENTS.

##### 1.6.1 Notification to Warranty Service Requirements

Following oral or written notification by authorized representative of the installation designated in writing by the Contracting Officer, the Contractor shall respond to warranty service requirements in accordance with the "Warranty Service Priority List" and the three categories of priorities listed below.

##### 1.6.1.1 Categories of Priorities

- a. First Priority Code 1: Perform on site inspection to evaluate situation, determine course of action, initiate work within 24 hours and work continuously to completion or relief.
- b. Second Priority Code 2: Perform on site inspection to evaluate situation, determine course of action, initiate work within 48 hours and work continuously to completion or relief.
- c. Third Priority Code 3: All other work to be initiated within 5 work days end work continuously to completion or relief.

##### 1.6.1.2 Warranty Service Priority List

###### SEALS AND GUIDES

Code 2 - Adjust as necessary to ensure proper gate operation

##### 1.6.2 Availability of Required Parts

Should parts be required to complete the work and the parts are not immediately available the Contractor shall have a maximum of 12 hours after arrival at the job site to provide authorized representative of the installation with firm written plan for emergency alternatives and temporary repairs for Government participation with the Contractor to provide emergency relief until the required parts are available on site for the Contractor to perform permanent warranty repair. The Contractors plan shall include a firm date and time that the required parts shall be available on site to complete the permanent warranty repair.

PART 2 PRODUCTS - NOT APPLICABLE

PART 3 EXECUTION - NOT APPLICABLE

-- End of Section --

## SECTION 01311

PROJECT SCHEDULE BAR CHART  
05/02

## PART 1 GENERAL

## 1.1 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01300 SUBMITTAL PROCEDURES:

## SD-07 Schedules

Initial Project Schedule; G, RE Revised Project Schedule; G, RE  
Periodic Schedule Updates; G, RE

Procedures for splicing waterstops shall be submitted for approval.

## SD-08 Progress Curve

SD-09 Narrative Reports with schedule updates.

## PART 2 PRODUCTS (Not Applicable)

## PART 3 EXECUTION

## 3.1 GENERAL

Pursuant to the Contract Clause, SCHEDULES FOR CONSTRUCTION CONTRACTS, and the Special Contract Requirement SCHEDULING AND DETERMINATION OF PROGRESS the contractor shall prepare and submit for approval a practicable project schedule. The schedule will be submitted within five (5) days after receipt of Notice to Proceed or as otherwise determined by the Contracting Officer.

## 3.2 BASIS FOR PAYMENT

The approved Project Schedule shall be used to measure the progress of the work, to aid in evaluating time extensions, and to provide the basis of all progress payments.

## 3.3 PROJECT SCHEDULE

The Project Schedule shall be in the form of chart consisting of a series of bars graphically indicating the sequence proposed to accomplish each work feature or operation. Each bar will represent a work feature, system or series of activities within the construction project. The chart shall be prepared to show the starting and completion dates of all work features on a linear horizontal time scale beginning with date of Notice to Proceed and indicating calendar days to completion. Interdependence of status of activities shall be shown. Horizontal time scale shall allow identification of the first work day of each week, which shall be identified. Space between bars shall be allowed for future revisions and notations.



### 3.4 PROGRESS CURVE

With the Project Schedule the contractor shall also submit for approval a progress curve which reflects the intended schedule for completing the work. The progress curve (S Curve) will be plotted to reflect Cumulative Progress (Percent) based on placement along the y axis and Time along the x axis.

### 3.5 SCHEDULE AND PROGRESS CURVE UPDATES

Approved Schedule and Progress Curve will be updated monthly during the entire duration of construction. Not later than four days after the Monthly Progress Meeting the contractor shall submit updated Project Schedule and Progress Curve. The updated versions shall include all approved contract revisions, progress of each activity to date of submission, and adjustments. Contractor shall also provide a very brief narrative report as required to indicate any problem areas, anticipated delays, impact on schedule, and corrective action.

### 3.6 PERIODIC PROGRESS MEETINGS

Progress meetings to discuss payment shall include a monthly on site meeting or other regular intervals mutually agreed to at the preconstruction conference. During this meeting the Contractor will describe, on an activity by activity basis, all proposed revisions and adjustments to the project schedule required to reflect the current status of the project. The Contracting Officer will approve activity progress, proposed revisions, and adjustments as appropriate.

-- End of Section --

## SECTION 01330

SUBMITTAL PROCEDURES  
09/00

## PART 1 GENERAL

## 1.1 SUBMITTAL IDENTIFICATION

Submittals required are identified by SD numbers and titles as follows:

- SD-01 Preconstruction Submittals
- SD-02 Shop Drawings
- SD-03 Product Data
- SD-04 Samples
- SD-05 Design Data
- SD-06 Test Reports
- SD-07 Certificates
- SD-08 Manufacturer's Instructions
- SD-09 Manufacturer's Field Reports
- SD-10 Operation and Maintenance Data
- SD-11 Closeout Submittals

## 1.2 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

## 1.2.1 Government Approved

Government approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

## 1.2.2 Information Only

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above. Submittal Register ENG FORM 4288, column labeled "Reviewer", this column is blank and is understood that the reviewer is "AR" (Area Office).

## 1.3 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory.

Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

#### 1.4 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

#### 1.5 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

### PART 2 PRODUCTS (Not used)

### PART 3 EXECUTION

#### 3.1 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) System Manager and each item shall be stamped, signed, and dated by the CQC System Manager indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

#### 3.2 SUBMITTAL REGISTER

At the end of this section is one set of ENG Form 4288 listing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and additional submittals may be required. The Contractor will also be given the submittal register files, containing the computerized ENG Form 4288 and instructions on the use of the files. These submittal register files will

be furnished on a separate diskette. Columns "c" through "f" have been completed by the Government; the Contractor shall complete columns "a" and "g" through "i" and submit the forms (hard copy plus associated electronic file) to the Contracting Officer for approval within 30 calendar days after Notice to Proceed. The Contractor shall keep this diskette up-to-date and shall submit it to the Government together with the monthly payment request. The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the contract. The submittal register and the progress schedules shall be coordinated.

At the end of this section is one set of ENG Form 4288 listing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and additional submittals may be required.

### 3.3 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 30 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

### 3.4 TRANSMITTAL FORM (ENG FORM 4025)

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 30 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

### 3.5 SUBMITTAL PROCEDURE

Six (6) copies of submittals shall be made as follows:

#### 3.5.1 Procedures

In the signature block provided on ENG Form 4025 the Contractor certifies that each item has been reviewed in detail and is correct and is in strict conformance with the contract drawings and specifications unless noted otherwise. The accuracy and completeness of submittals is the responsibility of the Contractor. Any costs due to resubmittal of documents caused by inaccuracy, lack of coordination, and/or checking shall be the responsibility of the Contractor. This shall include the handling and review time on the part of the Government. Each variation from the contract specifications and drawings shall be noted on the form; and, attached to the form, the Contractor shall set forth, in writing, the reason for and description of such variations. If these requirements are not met, the submittal may be returned for corrective action.

#### 3.5.2 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The

Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

### 3.6 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

### 3.7 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. Four (4) copies of the submittal will be retained by the Contracting Officer and two (2) copies of the submittal will be returned to the Contractor.

### 3.8 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

### 3.9 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

CONTRACTOR
(Firm Name)
_____ Approved
_____ Approved with corrections as noted on submittal data and/or attached sheets(s).
SIGNATURE: _____
TITLE: _____
DATE: _____

### 3.10 CERTIFICATES OF COMPLIANCE: (MAY 1969)

Any Certificate required for demonstrating proof of compliance of materials with specification requirements shall be executed in four (4) copies. Each certificate shall be signed by an official authorized to certify in behalf on the manufacturing company and shall contain the name and address of the Contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material, if, after tests are performed on selected samples, the material is found not to meet the specific requirements. (CENAB)

-- End of Section --

SUBMITTAL REGISTER													CONTRACT NO.				
TITLE AND LOCATION TANTER GATE REPAIR, WATERBURY DAM,													CONTRACTOR				
A C T I V I T Y N O	T R A N S M I T T A L N O	S P E C S E C T	DESCRIPTION ITEM SUBMITTED	P A R A G R A P H	G O V T C L A S S I F I C A T I O N R	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS	
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	A C T I O N C O D E	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	A C T I O N C O D E			DATE OF ACTION
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	01000		SD-01 Preconstruction Submittals														
			Title Evidence														
			Invoice Copies														
			Payment Evidence														
			Photographs	1.10													
			SD-03 Product Data														
			Cost or Pricing Data	1.6													
			Equipment Data	1.7													
			SD-05 Design Data														
			Progress Schedule	1.2	G R E												
			SD-10 Operation and Maintenance														
			Data														
			O and M Data	1.8													
	01050		SD-01 Preconstruction Submittals														
			Shut Down Utility Services	1.4.2	G R E												
			Advance Notice														
			Survey Data		G R E												
			Quantity Surveys														
	01311		SD-07 Certificates														
			Initial Project Schedule		G R E												
			Revised Project Schedule		G R E												
			Periodic Schedule Updates		G R E												
	01451		SD-01 Preconstruction Submittals														
			CQC Plan	3.2	G R E												
			Phase Notification														
			Request		G R E												

SUBMITTAL REGISTER												CONTRACT NO.					
TITLE AND LOCATION TANTER GATE REPAIR, WATERBURY DAM,												CONTRACTOR					
A C T I V I T Y N O	T R A N S M I T T A L N O	S P E C S E C T	DESCRIPTION ITEM SUBMITTED	P A R A G R A P H	G O V T C L A S S I F I C A T I O N R	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS	
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	A C T I O N C O D E	DATE OF ACTION	DATE FWD TO APPR AUTH/	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER			A C T I O N C O D E
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	01451		CQC Mgr Qualification		G R E												
			SD-05 Design Data														
			Notification of Changes	3.2.4													
			Punchlist														
			Minutes	3.3													
			SD-06 Test Reports														
			Tests	3.7.1													
			Documentation	3.9													
			Tests Performed	3.7.1													
			QC Records		G R E												
	01510		SD-02 Shop Drawings														
			Temporary Electrical Work	1.5	G R E												
	01525		SD-01 Preconstruction Submittals														
			Accident Prevention Plan (APP)	1.7	G												
			Activity Hazard Analysis (AHA)	1.8	G												
			Crane Critical Lift Plan	1.7.1	G												
			Crane Work Plan		G												
			Proof of qualification		G												
			SD-06 Test Reports														
			Reports	1.12													
			Accident Reports	1.12.1													
			Monthly Exposure Reports	1.12.3													
			Regulatory Citations and Violations	1.12.4													
			Crane Reports														
			SD-07 Certificates	1.12.5													



CONTRACT NO.

PAGE 3 OF 3 PAGES

SUBMITTAL REGISTER (ER 415-1-10)																	CONTRACT NO.							
TITLE AND LOCATION Waterbury Spillway																	CONTRACTOR				SPECIFICATION SECTION			
		TYPE OF SUBMITTAL										CLASSIFICATION		CONTRACTOR SCHEDULE DATES				CONTRACTOR ACTION			GOVERNMENT ACTION		REMARKS	
TRANS-MITTAL NO.	ITEM NO.	DESCRIPTION OF ITEM SUBMITTED		D A T A	D R A W I N G S	I N S T R U C T I O N S	S C H E D U L E S	S T A T E M E N T S	R E P O R T S	C E R T I F I C A T E S	S A M P L E S	R E C O R D S	I N F O R M A T I O N	G O V.	R E V I E W E R	S U B M I T	A P P R O V A L N E E D E D B Y	M A T E R I A L N E E D E D B Y	C O D E	D A T E	S U B M I T T O G O V E R N M E N T	C O D E		D A T E
a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.
		1.1.1.5.C	Demolition & Surface Preparation			X								ED										
		1.1.1.5.C	Stainless Steel							X				ED										
		1.1.1.5.C	Epoxy grout	X	X									ED										
		1.1.1.5.C	Specialty Concrete Repair Material	X					X	X				ED										
		1.1.1.5.C	Form & Pump System Details		X	X								ED										
		1.1.1.5.C	Curing	X		X								ED										
		1.1.1.5.C	Specialty Concrete Repair Material Test Results						X			X		ED										
		1.1.1.5.C	Patching Materials	X	X	X								ED										
		1.1.1.5.C	Exposure to Lake Water							X				ED										
		1.1.1.5.C	Flap Seal Strips							X				ED										
		1.1.1.5.C	Ultra High Molecular Weight Polyethylene							X				ED										
		1.1.1.5.C	Miscellaneous Metal and Fasteners							X				ED										
		1.1.1.5.C	Method of securing Right Bay Gate 1		X	X								ED										

TRANSMITTAL OF SHOPDRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE <i>(Read instructions on page two prior to initiating this form)</i>				DATE: Mo / Day / Yr / /		TRANSMITTAL NO --
SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS <i>(This section will be initiated by the contractor)</i>						
TO:		FROM:		CONTRACT NO. DAC		CHECK ONE: <input type="checkbox"/> THIS IS A NEW SUBMITTAL <input type="checkbox"/> THIS IS A RESUBMITTAL OF TRANSMITTAL
SPECIFICATION SEC NO. <i>(Cover only one section with each transmittal)</i>		PROJECT TITLE AND LOCATION				
ITEM NO.	DESCRIPTION OF ITEM SUBMITTED <i>(Type size, model number/etc.)</i>	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. <i>(See instruction no. 8)</i>	NO. OF COPIES	CONTRACT SPEC. PARA NO.	REFERENCE DRAWING SHEET NO.	FOR CONTR- ACTOR USE CODE
a.	b.	c.	d.	e.	f.	h. i.
REMARKS			I certify that the above submitted items have been reviewed in detail and are correct and in strict compliance with the contract drawings and specifications except as other wise stated.			
			NAME AND SIGNATURE OF THE CONTRACTOR			
SECTION II - APPROVAL ACTION						
ENCLOSURES RETURNED <i>(List by Item No.)</i>		NAME, TITLE OF APPROVING AUTHORITY		DATE		

## INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required numbers of copies.
2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.
3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288 for each entry on this form.
4. Submittals requiring expeditious handling will be submitted under a separate form.
5. Separate transmittal form will be used for submittals under separate sections of the specifications.
6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications -- also a written statement to that effect shall be included in the space provided for "Remarks".
7. Form is self transmitting, letter of transmittal is not required.
8. When a sample of a material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I
9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column I to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated in Section I, Column g, to each item submitted.

### THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

A --	Approved as submitted	E --	Disapproved (See Attached)
B --	Approved, except as noted on drawings.	F --	Receipt acknowledged
C --	Approved except as noted on drawings. Refer to attached sheet resubmission required.	FX --	Receipt acknowledged, does not comply as noted with contract requirements
D --	Will be returned by separate correspondence.	G --	Other (Specify)

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

## SECTION 01451

CONTRACTOR QUALITY CONTROL  
11/01

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740	(1999b) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(1998a) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

## 1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

## 1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-01 Preconstruction Submittals

## CQC Plan; G RE.

Identifies personnel, procedures, control, instructions, test, records, and forms to be used.

## Phase Notification

The Government shall be notified in a specified amount of time in advance of beginning the preparatory control phase.

## Request; G RE.

The requesting of specialized individuals in specific disciplines to perform quality control.

## CQC Mgr Qualification; G RE.

The evaluation of the project to determine the level of CQC System Manager required.

#### SD-05 Design Data

##### Notification of Changes

Any changes made by the Contractor.

##### Punchlist

Near the completion of all work, the CQC System Manager shall prepare a list of items which do not conform to the approved drawings and specifications.

##### Minutes

Prepared by the Government and signed by both the Contractor and the Contracting Officer and shall become a part of the contract file.

#### SD-06 Test Reports

##### Tests

Specified or required tests shall be done by the Contractor to verify that control measures are adequate.

##### Documentation

Results of tests taken.

##### Tests Performed

An information copy provided directly to the Contracting Officer.

##### QC Records; G RE.

Provide factual evidence that required quality control activities and/or tests have been performed.

#### PART 2 PRODUCTS (Not Applicable)

#### PART 3 EXECUTION

##### 3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including

quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

### 3.2 CQC PLAN

#### 3.2.1 General

The Contractor shall furnish for review by the Government, not later than 30 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 60 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

#### 3.2.2 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.
- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.
- e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. The Contractor shall include a copy of his proposed laboratory's latest Corps of Engineers inspection report in the Quality Control Plan. The inspection

report details the tests that the lab has been validated to perform under Corps of Engineers contracts. (Laboratory facilities will be approved by the Contracting Officer.)

- f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
- h. Reporting procedures, including proposed reporting formats.
- i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

### 3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

### 3.2.4 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

## 3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 14 calendar days prior to the Coordination Meeting.

During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.



### 3.4 QUALITY CONTROL ORGANIZATION

#### 3.4.1 General

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure contract compliance. The number of CQC personnel shall be increased as required during times of high construction workload. The Contractor shall provide a CQC organization which shall be at the site at all times during progress of the work and with complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the Contracting Officer.

#### 3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within his organization at the site of the work who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, or shall hold a state Professional Engineer's license, with a minimum of 2 years construction experience on construction similar to this contract, one year of which as a Quality Control Representative. The CQC Manager may also be a construction person with a minimum of 4 years in related work, one year of which as a QC Representative. This CQC System Manager shall be on the site at all times during construction and will be employed by the prime Contractor. An alternate for the CQC System Manager will be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate will be the same as for the designated CQC System Manager. The CQC System Manager shall be assigned no duties other than Quality Control.

#### 3.4.3 Organizational Expertise

The CQC organization, which includes the CQC System Manager and additional qualified personnel, must as a minimum possess general corporate technical knowledge of all aspects of the project, and must successfully execute the CQC System on all aspects of the project. Individuals possessing experience in specialized areas shall be added to the organization as required during periods when such specialty areas are being executed. Examples of such specialized areas would include HVAC, electrical distribution and substations, roofing, tele-communication systems, fire protection and alarm systems, computer installations, specialized welding, specialized finishes, precast concrete installation, modular housing, specialized geotech work, dredging, sand placement and surveying, chemical data acquisition, hazardous material removal and disposal, medical monitoring, etc., depending on the nature of the particular project. The Contractor must demonstrate that such additional qualified personnel have received sufficient training and indoctrination into the CQC system, and that these personnel properly execute the requirements of the CQC System within their areas of expertise.

#### 3.4.4 Additional Requirement

In addition to the above experience and education requirements the CQC System Manager shall have completed within the last five years the course entitled "Construction Quality Management for Contractors". This course is given at a cost of \$25 by Government personnel and is of two-day duration. The Government will provide one instruction manual for the course.

### 3.4.5 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

### 3.5 SUBMITTALS

Submittals, if needed, shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

### 3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

#### 3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications.
- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. Review of provisions that have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met per EM 385-1-1, "Safety and Health Requirements Manual".
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 48 hours in advance of beginning the preparatory control phase meeting. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall clearly indicate its intent and plan for communication of the results of the preparatory phase to applicable workers, to include materials, construction methods, workmanship standards, safety considerations and procedures, and preparatory phase meeting minutes.

### 3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work (DFW) when the accomplishment of a representative sample of the work is impending. The following shall be accomplished:

- a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 48 hours in advance of beginning the initial phase meeting. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), the foreman responsible for the definable feature and the work crew(s) for the appropriate DFW. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location (i.e. CQC Report number) of initial phase shall be indicated for future reference and comparison with follow up phases.

### 3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal

non-conforming work.

#### 3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, onsite production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

#### 3.6.5 Definable Feature of Work: Definition and Discussion

A Definable Feature of Work (DFW) is a portion of work consisting of materials, equipment, supplies and procedures which are closely related to each other, have the same control and will be accomplished by the same work crew to completion. A DFW must be sufficiently small so that control of the work (i.e. communication of requirements to workers, inspection of materials and workmanship and correction of deficiencies) will be easily accomplished. Some examples for various types of projects are:

- a. Rough-in of electrical boxes and wiring methods
- b. Lighting fixtures, receptacles, and accessories
- c. Panelboards, circuit breakers and motors.
- d. Water supply piping, fittings and supports
- e. DWV piping, fittings and supports for plumbing
- f. Concrete reinforcement and formwork
- g. Concrete mixing, placement, curing and finishing
- h. Testing Procedure for contaminated soil, materials and storage tank contents
- i. Storage Tank disassembly and removal
- j. Setting up of decontamination area, exclusion zones and standard safety procedures for asbestos removal
- k. Asbestos removal and disposal procedures
- l. Chemical Data Acquisition
- m. Preparation, removal and disposal of contaminated material
- n. Dredging and placement.

### 3.7 TESTS

#### 3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the

Government. Testing includes operation and/or acceptance tests when specified. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a laboratory which has been assurance inspected by the Corps of Engineers within the last two years. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

### 3.7.2 Testing Laboratories

#### 3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329. The Government requires a Corps of Engineers capability check of the laboratory which the contractor proposes to perform tests on soils, concrete, asphalt, aggregate and steel. If the laboratory proposed has not had the required Corps of Engineers capability check within the last two years, it will be performed by the Corps of Engineers at a cost of \$7200 to the contractor. This cost will be paid by the Contractor via check directly to the Corps of Engineers Laboratory performing the inspection and report.

#### 3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of \$7200 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory.

#### 3.7.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the

Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

#### 3.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials will be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Corps of Engineers Division Laboratory, as designated by the Government Representative. Coordination for each specific test, exact delivery location and dates will be made through the Area Office.

### 3.8 COMPLETION INSPECTION

#### 3.8.1 Punch-Out Inspection

Near the completion of all work or any increment thereof established by a completion time stated in the Special Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the CQC System Manager shall conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved drawings and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished the Contractor shall notify the Government that the facility is ready for the Government's "Pre-final" inspection.

#### 3.8.2 Pre-Final Inspection

The Government will perform this inspection to verify that the facility is ready to be occupied. A Government "Pre-final Punch List" will be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected and so notify the Government so that a "Final" inspection with the customer can be scheduled.

Any items noted on the "Pre-final" inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph will be accomplished within the time slated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

#### 3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person and the Contracting Officer's Representative will be in attendance at this inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final Inspection. Notice will be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being acceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional

inspection cost in accordance with the contract clause entitled "Inspection of Construction".

### 3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.
- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals reviewed, with contract reference, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. "N/A" shall be entered into any field for which no entry is intended. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 16 hours after the date(s) covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every seven days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel. All documentation is expected to be literate, legible and

complete.

### 3.10 SAMPLE FORMS

(Note: If the Quality Control System (QCS) (formally called Resident Management System (RMS)) is required to be used by the contractor for the QC System as indicated elsewhere in this contract, Contractor will generate all reports in the QCS System, and attached forms will serve as guidance only. Otherwise forms contained herein will be used by the CQC Staff for CQC System reporting ).

- a. The 2-page form at the end of the section will be used for the basic CQC Report. CQC personnel shall attach continuation sheets as required for any entries which cannot fit on the basic form. Preparatory and Initial Inspections, when performed, shall be indicated on the basic CQC report and minutes for each inspection shall be attached. Minutes will consist of a list of specific requirements for materials, procedures or equipment to be employed and shall also include any understandings reached or items of special importance discussed.
- b. In addition, outstanding deficiencies shall be listed on the form "List of Outstanding Deficiencies" at the end of this section and shall be attached to each CQC report. As deficiencies are corrected, they are to be acknowledged on the basic CQC report and shall be deleted from the list.
- c. Form at the end of this section entitled "CQC Test Report List" shall be used by the Contractor to track testing to be done as the project progresses, and also to summarize the Contractor's Quality Control testing to be reported on the CQC Plan.
- d. Form "Record of Preparatory and Initial Inspections" at the end of this section shall be used by the Contractor to track Preparatory and Initial inspections as the project progresses and also to summarize these required inspections as part of the CQC Plan.
- e. Additional reporting forms pertaining to specialized activities may be included herein or elsewhere in the contract, and shall be used for reporting as indicated.

### 3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor. Deficiencies cited and verbal instructions given to the Contractor by the Government Representative shall be entered into that day's CQC Report.

-- End of Section --





LIST OF OUTSTANDING DEFICIENCIES

SH \_\_\_\_\_ OF \_\_\_\_\_ DATE: \_\_\_\_\_

PROJECT TITLE: \_\_\_\_\_ CONTRACTOR: \_\_\_\_\_

LOCATION: \_\_\_\_\_ CQC REPORT# \_\_\_\_\_ CONTRACT #:

SPEC REF OR DWG#	LOCATION ON PROJECT	DESCRIPTION OF DEFICIENCY	DATE FOUND	DATE TO BE CORRECTED	DATE CORRECTED	REMARKS

NOTE: THIS FORM SHALL BE USED BY THE CONTRACTOR TO TRACK OUTSTANDING CONSTRUCTION DEFICIENCIES

CQC TEST REPORT LIST

CQC REPORT# \_\_\_\_\_ SH \_\_\_\_\_ OF \_\_\_\_\_ DATE: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_ CONTRACT #: \_\_\_\_\_

PROJECT TITLE: \_\_\_\_\_ LOCATION: \_\_\_\_\_

SPEC REF OR DWG#	TYPE OF TEST	DATE PERFORMED	RESULTS	REMARKS

NOTE: THIS FORM SHALL BE USED BY THE CONTRACTOR TO TRACK CQC TESTING.PROVIDE ATTACHMENTS AS REQUIRED.

1. Project Title: \_\_\_\_\_

Location: \_\_\_\_\_ Contract No.: \_\_\_\_\_

2. List Contractors and Subs Working This Day and Areas of responsibility of each

---

---

---

---

3. Weather:

---

4. Description and Location of Work of the Project (Also indicate days of no work and reasons for delay)

---

---

---

---

---

---

5. Labor and Equipment Breakdown by Trade (Attach Continuation)

---

---

---

6. Preparatory Phase Inspections Held (See Attached Minutes)

---

---

---

---

7. Initial Phase Inspections Held (See attached minutes)

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

<input type="checkbox"/> a. Testing Performed. Attach Results.	<input type="checkbox"/> d. Outstanding Deficiencies. See Attached List
<input type="checkbox"/> b. Verbal Instructions Received.	<input type="checkbox"/> e. Delivery of Equipment and Materials.
<input type="checkbox"/> c. Submittal Actions.	<input type="checkbox"/> f. Misc/Remarks.

(Use Space Below To Discribe Checked Items)

Signed \_\_\_\_\_ Date \_\_\_\_\_  
CQC Representative

## SECTION 01510

TEMPORARY CONSTRUCTION ITEMS  
01/01

## PART 1 GENERAL

## 1.1 General

The work covered by this section consists of furnishing all labor, materials, equipment, and services and performing all work required for or incidental to the items herein specified. No separate payment will be made for the construction and services required by this section, and all costs in connection therewith shall be included in the overall cost of the work unless specifically stated otherwise.

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-02 Shop Drawings

## Temporary Electrical Work; G RE.

The Contractor shall submit a temporary power distribution sketch prior to the installation of any temporary power.

## 1.3 PROJECT SIGN: (AUG 1974)

A project sign shall be provided and erected at a location designated by the Contracting Officer. The sign shall conform to the requirements as shown on Attachment No. 1, a copy of which is attached hereto. The sign shall be erected as soon as possible and within 15 days after the date of receipt of notice to proceed. Upon completion of the project, the sign shall be removed and disposed of by the Contractor. (CENAB)

## 1.4 SAFETY SIGN (AUG 1974)

A safety sign shall be provided and erected at a location designated by the Contracting Officer. The sign shall conform to the requirements as shown on Attachment No. 2, a copy of which is attached hereto. The sign shall be erected as soon as possible and within 15 days after the date of receipt of notice to proceed. The data required by the sign shall be corrected daily, with light colored metallic or non-metallic numerals. Numerals, including mounting hardware, shall be subject to the approval of the Contracting Officer. Upon completion of the project, the sign shall be removed and disposed of by the Contractor. (CENAB)

## 1.5 TEMPORARY ELECTRICAL WORK: (APR 1962 REV JUL 2000)

Temporary electrical work shall be in accordance with Sections 7 and 11 of EM 385-1-1 U.S. Army Corps of Engineers Safety and Health Requirements

Manual. The Contractor shall submit for approval a temporary power distribution sketch prior to the installation of any temporary power. The sketch shall include location, voltages, and means of protection for all temporary distribution system wiring and components to include lighting, receptacles, grounding, disconnecting means, and GFCIs. The Contractor shall test the temporary power system and devices for polarity, ground continuity, and ground resistance prior to the initial use and before use after any modification. The Contractor shall verify to the satisfaction of the Contracting Officer or his representative by a calibrated light meter that the minimum illumination required by Table 7-1 of the EM 385-1-1 is being provided. (CENAB-EN-DT)

#### 1.6 TEMPORARY CONSTRUCTION CONDITIONS

The dam must be capable of performing the function of a flood control structure throughout the proposed construction activities. The design flood event will raise the reservoir level to the top of the dam (Elevation 633). Therefore, any construction activity that, in the opinion of the Contracting Officer, compromises the ability of the dam to perform that function, must be modified. It may be necessary to modify proposed construction activities, temporary excavation slopes, or backfill materials and procedures in the event of a flood condition. Modifications to the contract requirements, or initiation of emergency procedures, will be undertaken only at the direction of the Contracting Officer.

#### 1.7 ACCESS ROADS, STAGING AND STOCKPILE AREAS

##### 1.7.1 Access Roads

Access roads, including the access roadway beginning at Route 2, the access road extending to the downstream toe of the dam, and the crest of the dam, will be maintained throughout construction by others.

##### 1.7.2 Staging Areas

Staging area is shown on the drawings. The Contractor shall keep the area clean of debris as directed by the Contracting Officer.

#### 1.8 PLANT COMMUNICATION (JAN 63)

Whenever the Contractor has the individual elements of his plant so located that operation by normal voice between these elements is not satisfactory, the Contractor shall install a satisfactory means of communication, such as telephone or other suitable devices. The facilities shall be made available for use by Government personnel. (CENAB)

#### 1.9 BARRICADES

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazardous areas during both day and night. (CENAB)

#### PART 2 PRODUCT

NOT APPLICABLE

PART 3 EXECUTION

NOT APPLICABLE

ATTACHMENTS:

Attachment 1 Project Sign

Attachment 2 Safety Sign

-- End of Section --



# US ARMY

CORPS of ENGINEERS New York District



RED CASTLE

NEW YORK HARBOR IMPROVEMENT PROJECT  
NEWARK BAY & KILL VAN KULL CHANNELS  
AREA 5, CONTRACT 5

CONTRACTOR:

FUNDED BY: FEDERAL % LOCAL %

COMPLETION DATE:

## FOR YOUR SAFETY

1. DO NOT ENTER DESIGNATED WORK AREAS
2. OBEY ALL VILLAGE REGULATIONS CONCERNING PROHIBITED BEACH ACTIVITIES

RED LETTER

DISTRICT ENGINEER COL WILLIAM PEARCE

Project Sign- Civil Works

# US ARMY

CORPS of ENGINEERS New York District



NEW YORK HARBOR IMPROVEMENT PROJECT  
NEWARK BAY & KILL VAN KULL CHANNELS  
AREA 5, CONTRACT 5

CONTRACTOR:

FUNDED BY: FEDEF % .OCA %

COMPLETION DATE:

## FOR YOUR SAFETY

1. DO NOT ENTER DESIGNATED WORK AREAS
2. OBEY ALL VILLAGE REGULATIONS CONCERNING PROHIBITED BEACH ACTIVITIES

DISTRICT ENGI COL WILLIAM PEARCE

## SECTION 01525

## SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS

01/04

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z359.1 (1992; R 1999) Safety Requirements for  
Personal Fall Arrest Systems, Subsystems  
and Components

ASME B30.3 (1996) Construction Tower Cranes

## ASME INTERNATIONAL (ASME)

ASME B30.22 (2000) Articulating Boom Cranes

ASME B30.5 (2000) Mobile and Locomotive Cranes

ASME B30.8 (2000) Floating Cranes and Floating  
Derricks

## NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 10 (2002) Portable Fire Extinguishers

NFPA 241 (2000) Safeguarding  
Construction, Alteration, and Demolition  
Operations

NFPA 51B (2003) Fire Prevention During Welding,  
Cutting, and Other Hot Work

NFPA 70 (2002) National Electrical Code

## U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2003) Safety -- Safety and Health  
Requirements

## U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910 Occupational Safety and Health Standards

29 CFR 1910.146 Permit-required Confined Spaces

29 CFR 1910.94 Ventilation

29 CFR 1915 Confined and Enclosed Spaces and Other  
Dangerous Atmospheres in Shipyard

	Employment
29 CFR 1919	Gear Certification
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.500	Fall Protection

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

### SD-01 Preconstruction Submittals

Accident Prevention Plan (APP); G

Activity Hazard Analysis (AHA); G

Crane Critical Lift Plan; G

Crane Work Plan; G

Proof of qualification for Crane Operators; G

### SD-06 Test Reports

#### Reports

Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."

Accident Reports

Monthly Exposure Reports

Regulatory Citations and Violations

Crane Reports

### SD-07 Certificates

Confined Space Entry Permit

Hot work permit

Machinery & Mechanized Equipment Certification Form

## 1.3 DEFINITIONS

a. Competent Person for Fall Protection. A person who is capable of identifying hazardous or dangerous conditions in the personal fall

arrest system or any component thereof, as well as their application and use with related equipment, and has the authority to take prompt corrective measures to eliminate the hazards of falling.

b. High Visibility Accident. Any mishap which may generate publicity and/or high visibility.

c. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even though provided by a physician or registered personnel.

d. Recordable Injuries or Illnesses. Any work-related injury or illness that results in:

- (1) Death, regardless of the time between the injury and death, or the length of the illness;
- (2) Days away from work;
- (3) Restricted work;
- (4) Transfer to another job;
- (5) Medical treatment beyond first aid;
- (6) Loss of consciousness; or
- (7) A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (6) above.

e. "USACE" property and equipment specified in USACE EM 385-1-1 should be interpreted as Government property and equipment.

#### 1.4 SAFETY - GENERAL CONSTRUCTION

General construction includes building construction, roofing, excavations, steel placement, paving, roads, site work, flood control structures, incidental removal of asbestos, lead paint, PCBs, etc. Other sections of the contract documents may also require separate specially qualified individuals in such areas as chemical data acquisition, sampling and analysis, medical monitoring, industrial hygiene, quality control, etc. The Contractor must comply with all safety requirements in the contract. In addition to plans as required by this section, submit safety plans for other sections as indicated therein.

#### 1.5 REGULATORY REQUIREMENTS

As a minimum, and in addition to the detailed requirements included in the provisions of this contract, work performed shall comply with USACE EM 385-1-1, OSHA, local military base rules, and any other federal, state, and local, laws, ordinances, criteria, rules and regulations which may apply. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

## 1.6 SITE QUALIFICATIONS, DUTIES AND MEETINGS

### 1.6.1 Personnel Qualifications

#### 1.6.1.1 Site Safety and Health Officer (SSHO)

Site Safety and Health Officer (SSHO) shall be provided at the work site to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor. Safety duties shall be performed by the SSHO for a minimum of 20 hours per week and shall be documented. The SSHO may not be the same person as the Quality Control System Manager where a separate QC Manager is required elsewhere in the contract. The SSHO shall meet the following requirements:

- a. A minimum of 7 years experience with construction safety as a major job duty with at least 3 years of experience on projects of similar complexity and scope.
- b. Must have completed 30-hour OSHA construction safety class or equivalent within the last 5 years.
- c. Must have completed an average of at least 24 hours of formal safety training each year for the past 3 years with training for competent person status for at least the following 4 areas of competency: Excavation; Scaffolding; Fall protection; Confined space. Additional areas of competence are required if special hazards will be encountered on the project.
- d. Must have a minimum of one year's experience or possess competence (via training) in arctic climate construction including the use of personal protective equipment (applies if project located in arctic area).
- e. Familiarity with the Corps of Engineers Safety Manual (EM 385-1-1), and any applicable Federal, State, or Local safety requirements.

#### 1.6.1.2 Competent Person for Confined Space Entry

Provide a competent person for confined space meeting the definition and requirements of EM 385-1-1.

#### 1.6.1.3 Crane Operators

Crane operators shall meet the requirements in USACE EM 385-1-1, Section 16 and Appendix G. In addition, for mobile cranes with Original Equipment Manufacturer (OEM) rated capacities of 50,000 pounds or greater, crane operators shall be designated as qualified by a source that qualifies crane operators (i.e., union, a government agency, or and organization that tests and qualifies crane operators). Proof of current qualification shall be provided.

#### 1.6.1.4 Additional Safety Staff

Additional Safety Staff having specialized safety competence shall be provided on a part-time basis during the time the applicable part of construction is ongoing, and as applicable to the project. The additional

staff shall have competence in hazardous energy, health hazard recognition, evaluation and control of chemical, physical, and biological agents, CPR/First Aid certification (current), electrical personal protective equipment and clothing, including selection, use, and maintenance, plus any other special hazards of the project. These individuals must be identified in the Accident Prevention Plan. They may be employees of the Prime Contractor or of subcontractors. Some or all of these competence may be fulfilled by the SSHO if qualified.

#### 1.6.2 Personnel Duties

##### 1.6.2.1 Site Safety and Health Officer (SSHO)/Superintendent

- a. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Safety inspection logs shall be attached to the Contractors' daily quality control report.
- b. Conduct mishap investigations and complete required reports. Maintain the OSHA Form 300 and Daily Production reports for prime and sub-contractors.
- c. Maintain applicable safety reference material on the job site.
- d. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings.
- e. Implement and enforce accepted APPS and AHAs.
- f. Maintain a safety and health deficiency tracking system that monitors outstanding deficiencies until resolution. A list of unresolved safety and health deficiencies shall be posted on the safety bulletin board.
- g. Ensure sub-contractor compliance with safety and health requirements.

Failure to perform the above duties will result in dismissal of the superintendent and/or SSHO, and a project work stoppage. The project work stoppage will remain in effect pending approval of a suitable replacement.

#### 1.6.3 Meetings

##### 1.6.3.1 Preconstruction Safety Conference

- a. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the preconstruction conference. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).
- b. The Contractor shall discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the

Contractor and the Contracting Officer's representative as to which phases will require an analysis. In addition, a schedule for the preparation, submittal, review, and acceptance of AHAs shall be established to preclude project delays.

c. Deficiencies in the submitted APP will be brought to the attention of the Contractor at the preconstruction conference, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Work shall not begin until there is an accepted APP.

d. The functions of a Preconstruction conference may take place at the Post-Award Kickoff meeting for Design Build Contracts.

#### 1.6.3.2 Safety Meetings

Shall be conducted and documented as required by EM 385-1-1. Minutes showing contract title, signatures of attendees and a list of topics discussed shall be attached to the Contractors' daily quality control report.

#### 1.7 ACCIDENT PREVENTION PLAN (APP)

The Contractor shall use a qualified person to prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of USACE EM 385-1-1 and as supplemented herein. Cover all paragraph and subparagraph elements in USACE EM 385-1-1, Appendix A, "Minimum Basic Outline for Preparation of Accident Prevention Plan". Where a paragraph or subparagraph element is not applicable to the work to be performed indicate "Not Applicable" next to the heading. Specific requirements for some of the APP elements are described below. The APP shall be job-specific and shall address any unusual or unique aspects of the project or activity for which it is written. The APP shall interface with the Contractor's overall safety and health program. Any portions of the Contractor's overall safety and health program referenced in the APP shall be included in the applicable APP element and made site-specific. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP shall be signed by the person and firm (senior person) preparing the APP, the Contractor, the on-site superintendent, the designated site safety and health officer and any designated CSP and/or CIH.

Submit the APP to the Contracting Officer 14 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP.

Once accepted by the Contracting Officer, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified.

Once work begins, changes to the accepted APP shall only be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSHO and quality control manager. Should any hazard become

evident, stop work in the area, secure the area, and develop a plan to remove the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate/remove the hazard. In the interim, all necessary action shall be taken to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ANSI/ASSE A10.34,) and the environment.

Copies of the accepted plan will be maintained at the resident engineer's office and at the job site.

The APP shall be continuously reviewed and amended, as necessary, throughout the life of the contract. Unusual or high-hazard activities not identified in the original APP shall be incorporated in the plan as they are discovered.

#### 1.7.1 EM 385-1-1 Contents

In addition to the requirements outlines in Appendix A of USACE EM 385-1-1, the following is required:

e. Crane Critical Lift Plan. Prepare and sign weight handling critical lift plans for lifts over 75 percent of the capacity of the crane or hoist (or lifts over 50 percent of the capacity of a barge mounted mobile crane's hoists) at any radius of lift; lifts involving more than one crane or hoist; lifts of personnel; and lifts involving non-routine rigging or operation, sensitive equipment, or unusual safety risks. The plan shall be submitted 15 calendar days prior to on-site work and include the requirements of USACE EM 385-1-1, paragraph 16.c.18. and the following:

(1) For lifts of personnel, the plan shall demonstrate compliance with the requirements of 29 CFR 1926.550(g).

(2) For barge mounted mobile cranes, barge stability calculations identifying barge list and trim based on anticipated loading; and load charts based on calculated list and trim. The amount of list and trim shall be within the crane manufacturer's requirements.

#### 1.8 ACTIVITY HAZARD ANALYSIS (AHA)

The Activity Hazard Analysis (AHA) format shall be in accordance with USACE EM 385-1-1. Submit the AHA for review at least 5 calendar days prior to the start of each phase. Format subsequent AHA as amendments to the APP. The analysis should be used during daily inspections to ensure the implementation and effectiveness of the activity's safety and health controls.

The AHA list will be reviewed periodically (at least monthly) at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change.

The activity hazard analyses shall be developed using the project schedule as the basis for the activities performed. Any activities listed on the project schedule will require an AHA. The AHAs will be developed by the contractor, supplier or subcontractor and provided to the prime contractor for submittal to the Contracting Officer.

#### 1.9 DISPLAY OF SAFETY INFORMATION



Within 5 calendar days after commencement of work, erect a safety bulletin board at the job site. The safety bulletin board shall include information and be maintained as required by EM 385-1-1, section 01.A.06. Additional items required to be posted as applicable include:

- a. Confined space entry permit.
- b. Hot work permit.

#### 1.10 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

#### 1.11 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment.

#### 1.12 REPORTS

##### 1.12.1 Accident Reports

For recordable injuries and illnesses, and property damage accidents resulting in at least \$2,000 in damages, the Prime Contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete the USACE Accident Report Form 3394 and provide the report to the Contracting Officer within 3 calendar days) of the accident. The Contracting Officer will provide copies of any required or special forms.

##### 1.12.2 Accident Notification

Notify the Contracting Officer as soon as practical, but not later than 24 hours, after any accident meeting the definition of Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than \$2,000, or any weight handling equipment accident. Information shall include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted.

##### 1.12.3 Monthly Exposure Reports

Monthly exposure reporting to the Contracting Officer is required to be attached to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both prime and subcontractor. The Contracting Officer will provide copies of any special forms.

##### 1.12.4 Regulatory Citations and Violations

Contact the Contracting Officer immediately of any OSHA or other regulatory agency inspection or visit, and provide the Contracting Officer with a copy of each citation, report, and contractor response. Correct violations and citations promptly and provide written corrective actions to the Contracting Officer.

#### 1.12.5 Crane Reports

Submit crane inspection reports required in accordance with USACE EM 385-1-1, Appendix H and as specified herein with Daily Reports of Inspections.

#### [1.12.6 Certificate of Compliance

The Contractor shall provide a Certificate of Compliance for each crane entering an activity under this contract (see Contracting Officer for a blank certificate). Certificate shall state that the crane and rigging gear meet applicable OSHA regulations (with the Contractor citing which OSHA regulations are applicable, e.g., cranes used in construction, demolition, or maintenance shall comply with 29 CFR 1926 and USACE EM 385-1-1 section 16 and Appendix H. Certify on the Certificate of Compliance that the crane operator(s) is qualified and trained in the operation of the crane to be used. The Contractor shall also certify that all of its crane operators working on the DOD activity have been trained in the proper use of all safety devices (e.g., anti-two block devices). These certifications shall be posted on the crane.

#### 1.13 HOT WORK

Prior to performing "Hot Work" (welding, cutting, etc.) or operating other flame-producing/spark producing devices, a written permit shall be requested from the Fire Division of the military base or the municipality where the work is being performed. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. The Contractor will provide at least two (2) twenty (20) pound 4A:20 BC rated extinguishers for normal "Hot Work". All extinguishers shall be current inspection tagged, approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch shall be trained in accordance with NFPA 51B and remain on-site for a minimum of 30 minutes after completion of the task or as specified on the hot work permit.

When starting work in the facility, Contractors shall require their personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency Fire Division phone number. ANY FIRE, NO MATTER HOW SMALL, SHALL BE REPORTED TO THE RESPONSIBLE FIRE DIVISION IMMEDIATELY.

Obtain services from a NFPA Certified Marine Chemist for "HOT WORK" within or around flammable materials (such as fuel systems, welding/cutting on fuel pipes) or confined spaces (such as sewer wet wells, manholes, vaults, etc.) that have the potential for flammable or explosive atmospheres.

## PART 2 PRODUCTS

### 2.1 CONFINED SPACE SIGNAGE

The Contractor shall provide permanent signs integral to or securely attached to access covers for new permit-required confined spaces. Signs

wording: "DANGER--PERMIT-REQUIRED CONFINED SPACE - DO NOT ENTER -" in bold letters a minimum of 25 mm (one inch) in height and constructed to be clearly legible with all paint removed. The signal word "DANGER" shall be red and readable from 1.52 m (5 feet).

## 2.2 FALL PROTECTION ANCHORAGE

Fall protection anchorage, conforming to ANSI Z359.1, installed under the supervision of a qualified person in fall protection, shall be left in place for continued customer use and so identified by signage stating the capacity of the anchorage (strength and number of persons who may be tied-off to it at any one time).

## PART 3 EXECUTION

### 3.1 CONSTRUCTION AND/OR OTHER WORK

The Contractor shall comply with USACE EM 385-1-1, NFPA 241, the APP, the AHA, Federal and/or State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard shall prevail.

#### 3.1.1 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with USACE EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials.

#### 3.1.2 Unforeseen Hazardous Material

The design should have identified materials such as PCB, lead paint, and friable and non-friable asbestos. If additional material, not indicated, that may be hazardous to human health upon disturbance during construction operations is encountered, stop that portion of work and notify the Contracting Officer immediately. Within 14 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions." The Contractor is required to execute this modification.

### 3.2 PRE-OUTAGE COORDINATION MEETING

Contractors are required to apply for utility outages at least 14 days in advance. As a minimum, the request should include the location of the outage, utilities being affected, duration of outage and any necessary sketches. Special requirements for electrical outage requests are contained elsewhere in this specification section. Once approved, and prior to beginning work on the utility system requiring shut down, the Contractor shall attend a pre-outage coordination meeting with the Contracting Officer and the Public Utilities Department to review the scope

of work and the lock-out/tag-out procedures for worker protection. No work will be performed on energized electrical circuits unless proof is provided that no other means exist.

### 3.3 FALL HAZARD PROTECTION AND PREVENTION PROGRAM

The Contractor shall establish a fall protection and prevention program, for the protection of all employees exposed to fall hazards. The program shall include company policy, identify responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and escape procedures.

#### 3.3.1 Training

The Contractor shall institute a fall protection training program. As part of the Fall Hazard Protection and Prevention Program, the Contractor shall provide training for each employee who might be exposed to fall hazards. A competent person for fall protection shall provide the training. Training requirements shall be in accordance with USACE EM 385-1-1, section 21.A.16.

#### 3.3.2 Fall Protection Equipment

The Contractor shall enforce use of the fall protection equipment designated for each specific work activity in the Fall Protection and Prevention Plan and/or AHA at all times when an employee is on a surface 1.8 m(6 feet) or more above lower levels. Fall protection systems such as guardrails, personnel fall arrest system, safety nets, etc., are required when working within 1.8m (6 feet) of any leading edge. In addition to the required fall protection systems, safety skiff, personal floatation devices, life rings etc., are required when working above or next to water in accordance with USACE EM 385-1-1, paragraphs 05.I. and 05.J. Personal fall arrest systems are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall arrest systems are required when operating other equipment such as scissor lifts if the work platform is capable of being positioned outside the wheelbase. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, or travel. Fall protection must comply with 29 CFR 1926.500, Subpart M and USACE EM 385-1-1.

##### 3.3.2.1 Personal Fall Arrest Equipment

Personal fall arrest equipment, systems, subsystems, and components shall meet ANSI Z359.1. Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest device. Body belts may only be used as a positioning device system (for uses such as steel reinforcing assembly and in addition to an approved fall arrest system). Harnesses shall have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Only locking snap hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber. The maximum free fall distance when using fall arrest equipment shall not exceed 1.8 m (6 feet). The total fall distance and any swinging of the worker (pendulum-like motion) that can occur during a fall shall always be taken into consideration when attaching a person to a fall arrest system.

##### 3.3.3 Fall Protection for Roofing Work

Fall protection controls shall be implemented based on the type of roof being constructed and work being performed. The roof area to be accessed shall be evaluated for its structural integrity including weight-bearing capabilities for the projected loading.

a. Low Sloped Roofs:

(1) For work within 1.8 m (6 feet) of an edge, on low-slope roofs, personnel shall be protected from falling by use of personal fall arrest systems, guardrails, or safety nets.[ A safety monitoring system is not adequate fall protection and is not authorized.]

(2) For work greater than 1.8 m (6 feet) from an edge, warning lines shall be erected and installed in accordance with 29 CFR 1926.500 and USACE EM 385-1-1.

b. Steep Roofs: Work on steep roofs requires a personal fall arrest system, guardrails with toe-boards, or safety nets. This requirement also includes residential or housing type construction.

3.3.4 Existing Anchorage

Existing anchorages, to be used for attachment of personal fall arrest equipment, shall be certified (or re-certified) by a qualified person for fall protection in accordance with ANSI Z359.1. Existing horizontal lifeline anchorages shall be certified (or re-certified) by a registered professional engineer with experience in designing horizontal lifeline systems.

3.3.5 Horizontal Lifelines

Horizontal lifelines shall be designed, installed, certified and used under the supervision of a qualified person for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 (29 CFR 1926.500).

3.3.6 Guardrails and Safety Nets

Guardrails and safety nets shall be designed, installed and used in accordance with (29 CFR 1926.500, Subpart Mand USACE EM 385-1-1).

3.3.7 Rescue and Evacuation Procedures

When personal fall arrest systems are used, the contractor must ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. A Rescue and Evacuation Plan shall be prepared by the contractor and include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. The Rescue and Evacuation Plan shall be included in the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP).

3.4 SCAFFOLDING

Employees shall be provided with a safe means of access to the work area on

the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Access to scaffold platforms greater than 6 m (20 feet) in height shall be accessed by use of a scaffold stair system. Vertical ladders commonly provided by scaffold system manufacturers shall not be used for accessing scaffold platforms greater than 6 m (20 feet) in height. The use of an adequate gate is required. Contractor shall ensure that employees are qualified to perform scaffold erection and dismantling. Do not use scaffold without the capability of supporting at least four times the maximum intended load or without appropriate fall protection as delineated in the accepted fall protection and prevention plan. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward. Special care shall be given to ensure scaffold systems are not overloaded. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material is prohibited. The first tie-in shall be at the height equal to 4 times the width of the smallest dimension of the scaffold base. Work platforms shall be placed on mud sills. Scaffold or work platform erectors shall have fall protection during the erection and dismantling of scaffolding or work platforms that are more than six feet. Delineate fall protection requirements when working above six feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of work.

### 3.5 EQUIPMENT

#### 3.5.1 Material Handling Equipment

- a. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions.
- b. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions.
- c. Operators of forklifts or power industrial trucks shall be licensed in accordance with OSHA.

#### 3.5.2 Weight Handling Equipment

- a. Cranes and derricks shall be equipped as specified in EM 385-1-1, section 16.
- b. The Contractor shall comply with the crane manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Erection shall be performed under the supervision of a designated person (as defined in ASME B30.5). All testing shall be performed in accordance with the manufacturer's recommended procedures.
- c. The Contractor shall comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes, ASME B30.3 for construction tower cranes, and ASME B30.8 for floating cranes and floating derricks.
- d. Under no circumstance shall a Contractor make a lift at or above 90% of the cranes rated capacity in any configuration.

e. When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and shall follow the requirements of USACE EM 385-1-1 section 11 and ASME B30.5 or ASME B30.22 as applicable.

f. Crane suspended personnel work platforms (baskets) shall not be used unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Personnel shall not be lifted with a line hoist or friction crane.

g. Portable fire extinguishers shall be inspected, maintained, and recharged as specified in NFPA 10, Standard for Portable Fire Extinguishers.

h. All employees shall be kept clear of loads about to be lifted and of suspended loads.

i. A weight handling equipment operator shall not leave his position at the controls while a load is suspended.

j. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.

k. A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the crane.

l. Certification records which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the crane that was inspected shall always be available for review by Contracting Officer personnel.

m. Written reports listing the load test procedures used along with any repairs or alterations performed on the crane shall be available for review by Contracting Officer personnel.

n. The Contractor shall certify that all crane operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

### 3.6 EXCAVATIONS

The competent person shall perform soil classification in accordance with 29 CFR 1926.

#### 3.6.1 Utility Locations

Prior to digging, the appropriate digging permit must be obtained. All underground utilities in the work area must be positively identified by a private utility locating service in addition to any station locating service and coordinated with the station utility department. Any markings made during the utility investigation must be maintained throughout the contract.

#### 3.6.2 Utility Location Verification

The Contractor must physically verify underground utility locations by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within three feet of the underground

system. Digging within 0.061 m (2 feet) of a known utility must not be performed by means of mechanical equipment; hand digging shall be used. If construction is parallel to an existing utility the utility shall be exposed by hand digging every 30.5 m (100 feet) if parallel within 1.5 m (5 feet) of the excavation.

### 3.6.3 Shoring Systems

Trench and shoring systems must be identified in the accepted safety plan and AHA. Manufacture tabulated data and specifications or registered engineer tabulated data for shoring or benching systems shall be readily available on-site for review. Job-made shoring or shielding shall have the registered professional engineer stamp, specifications, and tabulated data.

Extreme care must be used when excavating near direct burial electric underground cables.

### 3.6.4 Trenching Machinery

Trenching machines with digging chain drives shall be operated only when the spotters/laborers are in plain view of the operator. Operator and spotters/laborers shall be provided training on the hazards of the digging chain drives with emphasis on the distance that needs to be maintained when the digging chain is operating. Documentation of the training shall be kept on file at the project site.

## 3.7 UTILITIES WITHIN CONCRETE SLABS

Utilities located within concrete slabs or pier structures, bridges, and the like, are extremely difficult to identify due to the reinforcing steel used in the construction of these structures. Whenever contract work involves concrete chipping, saw cutting, or core drilling, the existing utility location must be coordinated with station utility departments in addition to a private locating service. Outages to isolate utility systems shall be used in circumstances where utilities are unable to be positively identified. The use of historical drawings does not alleviate the contractor from meeting this requirement.

## 3.8 ELECTRICAL

### 3.8.1 Conduct of Electrical Work

Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Positive cable identification must be made prior to submitting any outage request for electrical systems. Arrangements are to be coordinated with the Contracting Officer and Station Utilities for identification. The Contracting Officer will not accept an outage request until the Contractor satisfactorily documents that the circuits have been clearly identified. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator will be allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method. When working in energized substations, only qualified electrical workers shall be permitted to enter. When work requires Contractor to work near energized circuits as defined by the NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes,



insulating gloves with leather protective sleeves, fire retarding shirts, coveralls, face shields, and safety glasses. In addition, provide electrical arc flash protection for personnel as required by NFPA 70E. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA.

### 3.8.2 Portable Extension Cords

Portable extension cords shall be sized in accordance with manufacturer ratings for the tool to be powered and protected from damage. All damaged extension cords shall be immediately removed from service. Portable extension cords shall meet the requirements of NFPA 70.

### 3.9 WORK IN CONFINED SPACES

The Contractor shall comply with the requirements in Section 06.I of USACE EM 385-1-1 and OSHA 29 CFR 1910.146. Any potential for a hazard in the confined space requires a permit system to be used.

- a. Entry Procedures. Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. (See Section 06.I.05 of USACE EM 385-1-1 for entry procedures.) All hazards pertaining to the space shall be reviewed with each employee during review of the AHA.
- b. Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its' action level.
- c. Ensure the use of rescue and retrieval devices in confined spaces greater than 1.5 m (5 feet) in depth. Conform to Sections 06.I.09, 06.I.10 and 06.I.11 of USACE EM 385-1-1.
- d. Sewer wet wells require continuous atmosphere monitoring with audible alarm for toxic gas detection.

### 3.10 CRYSTALLINE SILICA

Grinding, abrasive blasting, and foundry operations of construction materials containing crystalline silica, shall comply with OSHA regulations, such as 29 CFR 1910.94, and USACE EM 385-1-1, Appendix C. The Contractor shall develop and implement effective exposure control and elimination procedures to include dust control systems, engineering controls, and establishment of work area boundaries, as well as medical surveillance, training, air monitoring, and personal protective equipment.

### 3.11 HOUSEKEEPING

#### 3.11.1 Clean-Up

All debris in work areas shall be cleaned up daily or more frequently if necessary. Construction debris may be temporarily located in an approved location, however garbage accumulation must be removed each day.

-- End of Section --

## SECTION 01561

ENVIRONMENTAL PROTECTION  
01/01

## PART 1 GENERAL

The work covered by this section consists of furnishing all labor, materials and equipment and performing all work required for the prevention of environmental pollution during, and as the result of, construction operations under this contract except for those measures set forth in the Technical Provisions of these specifications. For the purpose of this specification, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life or affect other species of importance to man. The control of environmental pollution requires consideration of air, water, and land.

## 1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-05 Preconstruction Submittals

Facility Plan; G RE.

Location of storage and service facilities.

Temporary Plan; G RE.

Temporary excavation and embankments.

## 1.2 APPLICABLE REGULATIONS

The Contractor and his subcontractors in the performance of this contract, shall comply with all applicable Federal, State, and local laws and regulations concerning environmental pollution control and abatement in effect on the date of this solicitation, as well as the specific requirements stated elsewhere in the contract specifications.

## 1.3 NOTIFICATION

The Contracting Officer will notify the Contractor of any non-compliance with the foregoing provisions and the action to be taken. The Contractor shall, after receipt of such notice, immediately take corrective action. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of time lost due to any such stop order shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor unless it is later determined that the Contractor was in compliance.

#### 1.4 SUBCONTRACTORS

Compliance with the provisions of this section by subcontractors will be the responsibility of the Contractor.

#### 1.5 PROTECTION OF WATER RESOURCES

The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumens, calcium chloride, acid construction wastes or other harmful materials. All work under this contract shall be performed in such a manner that objectionable conditions will not be created in streams through or adjacent to the project areas. Machinery shall be fueled away from State waters and shall be maintained in good mechanical condition in terms of integrity of hoses, seals, and gaskets. Concrete equipment shall not be washed in any area that would result in a discharge of wash water or concrete to State waters.

#### 1.6 EROSION AND SEDIMENTATION CONTROL

The Contractor shall accomplish the erosion and sedimentation control in accordance with the contract drawings and as specified herein. At the outset of construction, the Contractor will be required to accept by signature a Transfer of Authority letter. The acceptance of the Transfer of Authority places responsibility on the Contractor to fully adhere to the provisions of the General Permit for erosion and sedimentation control and stormwater management.

##### 1.6.1 Staging Area

The staging area shall be contained to prevent loss of sediment into the reservoir with appropriate sediment and erosion control features such as silt fencing or hay bales. The Contractor shall submit an erosion and sediment control plan to the Contracting Officer for approval prior to the start of construction activities. Silt fencing shall not be used where concentrated flow of water is anticipated. Any disturbed areas shall be properly graded, seeded and mulched upon completion of the job. Upon substantial completion of the job and after restoration of disturbed areas, sediment and erosion control features shall be removed.

#### 1.7 BURNING

Burning shall not be allowed.

#### 1.8 DUST CONTROL

The Contractor shall maintain all work area free from dust which would contribute to air pollution. Approved temporary methods of stabilization consisting of sprinkling or similar methods will be permitted to control dust. Sprinkling, where used, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

#### 1.9 PROTECTION OF LAND RESOURCES

##### 1.9.1 General

It is intended that the land resources within the project boundaries and outside the limits of permanent work performed under this contract be preserved in their present condition or be restored to a condition after completion of construction that will appear to be natural and not detract from the appearance of the project. Insofar as possible, the Contractor shall confine his construction activities to areas defined by the plans and specifications or to be cleared for other operations. The following additional requirements are intended to supplement and clarify the requirements of the CONTRACT CLAUSES:

#### 1.9.2 Protection of trees retained

##### 1.9.2.1 Contractors Responsibility

The Contractor shall be responsible for the protection of the tops, trunks and roots of all existing trees that are to be retained on the site. Protection shall be maintained until all work in the vicinity has been completed and shall not be removed without the consent of the Contracting Officer. If the Contracting Officer finds that the protective devices are insufficient, additional protection devices shall be installed.

##### 1.9.2.2 Stockpiling

Heavy equipment, vehicular traffic, or stockpiling of any materials shall not be permitted within the drip line of trees to be retained.

##### 1.9.2.3 Storage

No toxic materials shall be stored within 100 feet (30.5 m) from the drip line of trees to be retained.

##### 1.9.2.4 Confined Area

Except for areas shown on the plans to be cleared, the Contractor shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without special authority. Existing near by trees shall not be used for anchorage unless specifically authorized by the Contracting Officer. Where such special emergency use is permitted, the Contractor shall first adequately protect the trunk with a sufficient thickness of burlap over which softwood cleats shall be tied.

##### 1.9.2.5 Tree Defacing

No protective devices, signs, utility boxes or other objects shall be nailed to trees to be retained on the site.

#### 1.9.3 Restoration of landscape damage

Any trees or other landscape feature scarred or damaged by the Contractor's operations shall be restored as nearly as possible to its original condition at the Contractor's expense. The Contracting Officer will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed of. All scars made on trees, designated on the plans to remain, and all cuts for the removal of limbs larger than 1-inch in diameter shall be coated as soon as possible with an approved tree wound dressing. All trimming or pruning shall be performed in an approved manner by experienced workmen with saws or pruning shears. Tree trimming with axes will not be permitted. Where

tree climbing is necessary, the use of climbing spurs will not be permitted. Trees that are to remain, either within or outside established clearing limits, that are subsequently damaged by the Contractor and are beyond saving in the opinion of the Contracting Officer, shall be immediately removed and replaced with a nursery-grown tree of the same species. Replacement trees shall measure no less than 2 inches in diameter at 6 inches above the ground level.

#### 1.9.4 Location of Storage and Services Facilities

The location on Government property of the Contractor's storage and service facilities, required temporarily in the performance of the work, shall be upon cleared portions of the job site or areas to be cleared. The preservation of the landscape shall be an imperative consideration in the selection of all sites and in the construction of buildings. A facility plan showing storage and service facilities shall be submitted for approval to the Contracting Officer. Where buildings or platforms are constructed on slopes, the Contracting Officer may require cribbing to be used to obtain level foundations. Benching or leveling of earth may not be allowed, depending on the location of the proposed facility.

#### 1.9.5 Temporary Excavation and Embankment

If the Contractor proposes to construct temporary roads, embankments or excavations for plant and/or work areas, he shall submit a temporary plan for approval prior to scheduled start of such temporary work.

#### 1.10 MEASUREMENT AND PAYMENT

Except as noted in paragraph, PERFORMANCE AND PAYMENT BOND REIMBURSEMENT above, no separate measurement and payment will be made for the work performed in this Section 01561, ENVIRONMENTAL PROTECTION specified herein and all costs in connection therewith shall be considered a subsidiary obligation of the Contractor, and shall be included in the overall cost of the work.

PART 2 PRODUCT  
NOT APPLICABLE

PART 3 EXECUTION  
NOT APPLICABLE

-- End of Section --

## SECTION 01720

## AS-BUILT DRAWINGS - CADD

01/01

## PART 1 GENERAL

## 1.1 Preparation

This section covers the preparation of as-built drawings complete, as a requirement of this contract. The terms "drawings," "contract drawings," "drawing files," and "final as-built drawings" refer to a set of computer-aided design and drafting (CADD) contract drawings in electronic file format which are to be used for as-built drawings.

## 1.2 PROGRESS MARKED UP AS-BUILT PRINTS

The Contractor shall revise one set of paper prints to show the as-built conditions during the prosecution of the project. These as-built marked prints shall be kept current and available on the jobsite at all times. All changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. The as-built marked prints will be jointly reviewed for accuracy and completeness by the Contracting Officer and a responsible representative of the construction Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the as-built drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the as-built drawings and will continue the monthly deduction of the 10% retainage even after 50% completion of the contract. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and a representative of the Contractor regarding the accuracy and completeness of updated drawings. The prints shall show the following information, but not be limited thereto:

## 1.2.1 Location and Description

The location and description of any utility lines or other installations of any kind or description known to exist within the construction area. The location includes dimensions to permanent features.

## 1.2.2 Location and Dimensions

The location and dimensions of any changes within the building or structure.

## 1.2.3 Corrections

Correct grade, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

Correct elevations if changes were made in site grading.

## 1.2.4 Changes

Changes in details of design or additional information obtained from

working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

The topography, invert elevations and grades of all drainage installed or affected as a part of the project construction.

All changes or modifications which result from the final inspection.

#### 1.2.5 Options

Where contract drawings or specifications present options, only the option selected for construction shall be shown on the as-built prints.

#### 1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

##### SD-11 Closeout Submittals

Progress Prints; G RE.

Preparation of two copies of as-builts from the Contractor to the Contracting Officer for review and approval.

Final Requirements; G RE.

CADD Files.

Shall consist of two sets of completed as-built contract drawings on separate media consisting of both CADD files (compatible with the Using Agency/Sponsor's system on electronic storage media identical to that supplied by the Government) and a CALS Type 1, Group 4, Raster Image File of each contract drawing.

Receipt by the Contractor of the approved marked as-built prints.

#### 1.4 PRELIMINARY SUBMITTAL

At the time of final inspection, the Contractor shall prepare two copies of the progress as-built prints and these shall be delivered to the Contracting Officer for review and approval. These as-built marked prints shall be neat, legible and accurate. The review by Government personnel will be expedited to the maximum extent possible. Upon approval, one copy of the as-built marked prints will be returned to the Contractor for use in preparation of final as-built drawings. If upon review, the as-built marked prints are found to contain errors and/or omissions, they shall be returned to the Contractor for corrections. The Contractor shall complete the corrections and return the as-built marked prints to the Contracting Officer within ten (10) calendar days.

#### 1.5 DRAWING PREPARATION



### 1.5.1 As-Built Drawings Approval

Upon approval of the as-built prints submitted, the Contractor will be furnished by the Government one set of contract drawings, with all amendments incorporated, to be used for as-built drawings. These contract drawings will be furnished on CD-ROM. These drawings shall be modified as may be necessary to correctly show all the features of the project as it has been constructed by bringing the contract set into agreement with the approved as-built prints, adding such additional drawings as may be necessary. These drawings are part of the permanent records of this project and the Contractor shall be responsible for the protection and safety thereof until returned to the Contracting Officer. Any drawings damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at no expense to the Government.

### 1.5.2 Proficient Personnel

Only personnel proficient in the preparation of engineering CADD drawings to standards satisfactory and acceptable to the Government shall be employed to modify the contract drawings or prepare additional new drawings. All additions and corrections to the contract drawings shall be equal in quality to that of the originals. Line work, line weights, lettering, layering conventions, and symbols shall be the same as the original line work, line weights, lettering, layering conventions, and symbols. If additional drawings are required, they shall be prepared using the specified electronic file format applying the same guidance specified for original drawings. The title block and drawing border to be used for any new as-built drawings shall be identical to that used on the contract drawings. All additions and corrections to the contract drawings shall be accomplished using CADD media files supplied by the Government. These contract drawings will already be compatible with the Using Agency/Sponsor's system when received by the Contractor. The Using Agency/Sponsor uses AutoCAD Release 2000 CADD software system. The media files will be supplied on ISO 9660 Format CD-ROM. The Contractor is responsible for providing all program files and hardware necessary to prepare as-built drawings. The Contracting Officer will review all as-built drawings for accuracy and the Contractor shall make all required corrections, changes, additions, and deletions.

### 1.5.3 Final Revisions

When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" followed by the name of the General Contractor in letters at least 3/16 inch high. All other contract drawings shall be marked either "As-Built" drawing denoting no revisions on the sheet or "Revised As-Built" denoting one or more revisions. All original contract drawings shall be dated in the revision block (SEE ATTACHMENTS 1 and 2) located at the end of this section.

## 1.6 FINAL REQUIREMENTS

After receipt by the Contractor of the approved marked as-built prints and the original contract drawing files the Contractor will, within 30 days for contracts less than \$5 million or 60 days for contracts \$5 million and above, make the final as-built submittal. The submittal shall consist of the following:

- a) Two sets of the as-built contract drawings on separate CD's (ISO 9660

Format CD-ROM) consisting of the updated CADD files and a CALS Type 1 Group 4 Raster Image File of each contract drawing plate. The CALS files shall be exact duplicates of the full sized plots of the completed as-built contract drawings at a resolution of 400 dpi and may be either plotted to CALS files directly from the CADD files, or scanned to file from the prints.

b) Two sets of full size paper prints (plots) of the completed as-built contract drawings.

c) The return of the approved marked as-built prints.

They shall be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Any translations or adjustments necessary to accomplish this is the responsibility of the Contractor. The Government reserves the right to reject any drawing files it deems incompatible with its CADD system. All paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit as-built drawing files and marked prints as required herein shall be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final as-built drawings shall be accomplished before final payment is made to the Contractor.

#### 1.7 PAYMENT

No separate payment will be made for the as-built drawings required under this contract, and all costs in connection therewith shall be considered a subsidiary obligation of the Contractor.

PART 2 PRODUCT  
NOT APPLICABLE

PART 3 EXECUTION  
NOT APPLICABLE

ATTACHMENT: Attachment 1 - Example Title Block Info.

-- End of Section --

RECORD DRAWING AS-BUILT  
XYZ CONTRACTOR

Sheet  
Number:  
T-1

Plate: 1

FT. INDIANTOWN GAP  
PENNSYLVANIA

EQUIPMENT CONCENTRATION SITE

COVER SHEET

U.S. ARMY ENGINEER DISTRICT, BALTIMORE CORPS OF ENGINEERS BALTIMORE, MARYLAND	Designed by:		Date: JAN 2001	Rev.
	Dwn by:	Ckd by:	Design file no.	
A/E FIRM/CONTRACTOR 3 LINES PROVIDED OR LOGO	Reviewed by:		Drawing Number: F-XXX-XX-XX	
	Submitted by:		File name: FILENAME Plot date: 12/25/00 Plot scale: 1=1	
Chief, Branch				

	AS-BUILT	10 SEP 02					
3	REVISED SECTION A-A AND C-C	5 JAN 01	A.E. D.P.				
2	REVISED PER AMENDMENT NO. 2	30 DEC 00	A.E. D.P.				
1	REVISED PER AMENDMENT NO. 1	25 DEC 00	A.E. D.P.				
Mark	Description	Date	Appr.	Mark	Description	Date	Appr.